UK MET OFFICE
GLOBAL DATA MONITORING REPORT

April 2005

Data Assimilation
Meteorological Office
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1. Introduction

As the WMO-appointed lead centre for monitoring surface marine data, the U.K. Meteorological Office produces monthly statistics on the quality of these observations received at RSMC Exeter. This report includes this information along with statistics for most other types of data. The figures and tables contained herein are presented according to the agreed standards for the exchange of monitoring results.

The report is based on data received at the UK Meteorological Office Headquarters, Exeter in time for inclusion into the appropriate analysis (the current cut-off time is approximately 7.2 hours after each analysis time). The evaluation of data quality is based on comparison with the appropriate 6-hour global model forecast (background) field, although to provide background values valid at the observation time for non-main hour data, time-interpolation of the T+3, T+6 and T+9 forecasts is used; and for sea surface temperature the background field is the analysis from the previous day. Generally, the background field is of high quality except in data sparse areas, tropical regions and areas close to steep orography where care should be taken in interpreting the statistics shown.

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2 Global Data Monitoring Statistics

Ships, Fixed buoys, Platforms and Drifting buoys observations

TABLES 1and 2 contain lists of the stations which are considered to have returned suspect observations of pressure, windspeed, wind direction or sea surface temperature, as appropriate, during the month. The criteria for quality control are given on the header page for each table.

Figures 1 and 2 show 10 degree lat/long box average numbers of SHIP/SYNOP and DRIFTER observations received per day throughout the month at Exeter and assimilated into model runs. All data are included. Box average values are plotted as the nearest whole number (values of x.5 are rounded up). Where the average is more than 999, then 999 is plotted. A box with no observations is blank. If the 24 hour average >0 but <0.5, then 0 is plotted.

Synop Observations

Table 3 contains a list of stations which are considered to have returned suspect observations of Pressure during the month. The criteria for quality control are given in the header page. The reporting practice of each station is included in the list of statistics.

At the UK Met. Office, we monitor SYNOP pressure after it has been interpolated to our Global NWP Model's surface height. For most synoptic stations (about 75%), the surface pressure (at the model surface) is calculated from the reported station-level pressure, or, if this is not available, the height of a standard pressure-level (e.g. 850 hPa or 700 hPa). If neither of these are available, or if the reported station-level pressure is deemed unreliable, the reported mean sea-level pressure is used (about 25% of SYNOPs).

Aircraft observations

Tables 4A (300-150 hPa) and 4B (1000-301 hPa) contain lists of statistics calculated from data received from all airline carriers.

Figures 3A (300-150 hPa) and 3B (1000-301 hPa) show 10 degree lat/long box average numbers of aircraft reports in AIREP/AMDAR code (including AIREP, ACAR, AMDAR, ASDAR and ADS) received per day throughout the month at Exeter and assimilated into model runs. Observations with a vector wind difference (compared with the model background field) of >60 m s^{-1} have been excluded. Box average values are plotted as the nearest whole number (values of x.5 are rounded up). Where the average is more than 999, then 999 is plotted. A box with no observations is blank. If the 24 hour average >0 but <0.5, then 0 is plotted.

Figures 4A-7A (300-150 hPa) and 4B-7B (1000-301 hPa) show wind statistics for AIREP/ASDAR in AIREP/AMDAR code (including AIREP, ACAR, AMDAR, ASDAR and ADS). Observations with a vector wind difference > 60 m s^{-1} have been excluded. Statistics have not been calculated for 10 degree lat/long boxes containing <31 observations.

Figure	Parameter
4	Mean wind vectors
5	Mean observation - background wind vector
6	Mean observation-background speed (m s^{-1})
7	RMS observation-background vector (m s^{-1})

Radiosonde Observations

TABLES 5-7 contain lists of the stations which are considered to have returned suspect observations of geopotential height, vector wind or wind direction, as appropriate, during the month. The criteria for quality control are given on the header page for each table.

Figures 8 and 9 show 10 degree lat/long box average numbers of TEMP 500 hPa GEOPOTENTIAL HEIGHT and TEMP/PILOT 300 hPa WIND observations received per day throughout the month at Exeter and assimilated into model runs. Data from all hours are included. Box average values are plotted as the nearest whole number (values of x.5 are rounded up). Where the average is more than 999, then 999 is plotted. A box with no observations is blank. If the 24 hour average >0 but <0.5, then 0 is plotted.

APPENDIX I shows details of the gross error limits used in TABLES 5 and 6 and the weights used in the RMS values in TABLE 5.

Satellite Observations

Figures 10-24 show satellite wind statistics for all geostationary satellites. All plots other than **AVAILABILITY** show average data where there are > 10 observations in a 10 degree lat/long box.

Figure	Parameter Plotted	Layer (hPa)
10	Availability/average daily number	701-1000
11	Vector mean wind (observed)	701-1000
12	Observation-background vector wind difference	701-1000
13	Mean observation-background speed differences	701-1000
14	RMS observation-background vector difference	701-1000
15	Availability/average daily number	401-700
16	Vector mean wind (observed)	401-700
17	Observation-background vector wind difference	401-700
18	Mean observation-background speed differences	401-700
19	RMS observation-background vector difference	401-700
20	Availability/average daily number	101-400
21	Vector mean wind (observed)	101-400
22	Observation-background vector wind difference	101-400
23	Mean observation-background speed differences	101-400
24	RMS observation-background vector difference	101-400

Figures 25-39 show sounding statistics from the polar orbitting satellite NOAA-15. Figure 25 shows the mean daily number of ATOVS soundings, and figures 26-39 show mean and standard deviation observation-background differences for brightness temperature, for selected channels.

Figure		Weighting function peak (hPa)
26	Mean	Surface (HIRS8)
27	SD	Surface (HIRS8)
28	Mean	700 (HIRS15)
29	SD	700 (HIRS15)
30	Mean	500-700 (HIRS11)
31	SD	500-700 (HIRS11)
32	Mean	400 (HIRS4)
33	SD	400 (HIRS4)
34	Mean	700 (AMSUA5)
35	SD	700 (AMSUA5)
36	Mean	300 (AMSUA7)
37	SD	300 (AMSUA7)
38	Mean	100 (AMSUA9)
39	RMS	100 (AMSUA9)

Figures 40-54 show sounding statistics from the polar orbitting satellite NOAA-16. Figure 40 shows the mean daily number of ATOVS soundings, and figures 41-54 show mean and standard deviation observation-background differences for brightness temperature, for selected channels.

Figure		Weighting function peak (hPa)
41	Mean	Surface (HIRS8)
42	SD	Surface (HIRS8)
43	Mean	700 (HIRS15)
44	SD	700 (HIRS15)
45	Mean	500-700 (HIRS11)
46	SD	500-700 (HIRS11)
47	Mean	400 (HIRS4)
48	SD	400 (HIRS4)
49	Mean	700 (AMSUA5)
50	SD	700 (AMSUA5)
51	Mean	300 (AMSUA7)
52	SD	300 (AMSUA7)
53	Mean	100 (AMSUA9)
54	RMS	100 (AMSUA9)

Figures 55-69 show sounding statistics from the polar orbitting satellite NOAA-17. Figure 55 shows the mean daily number of ATOVS soundings, and figures 56-69 show mean and standard deviation observation-background differences for brightness temperature for selected channels.

Figure		Weighting function peak (hPa)
56	Mean	Surface (HIRS8)
57	SD	Surface (HIRS8)
58	Mean	700 (HIRS15)
59	SD	700 (HIRS15)
60	Mean	500-700 (HIRS11)
61	SD	500-700 (HIRS11)
62	Mean	400 (HIRS4)
63	SD	400 (HIRS4)
64	Mean	700 (AMSUA5)
65	SD	700 (AMSUA5)
66	Mean	300 (AMSUA7)
67	SD	300 (AMSUA7)
68	Mean	100 (AMSUA9)
69	RMS	100 (AMSUA9)

N.B. All satellite sounding data is bias-corrected (and thinned) before being assimilated in the UKMO NWP model.

3 Composite Observing Systems for the North Atlantic (COSNA)

This section shows statistics for upper air (radiosonde and aircraft) and surface (drifter) data for the North Atlantic area for data received at Exeter during the month.

TABLE 8 shows quality statistics for **Mean Sea-level Pressure, Windspeed and Wind Direction** received at Exeter in DRIFTER code during the month for the area 10°N - 80°N, 85°W - 0°W.

TABLE 9 shows quality statistics for **Temperature and Vector Wind** received at Exeter from aircraft during the month for the area 40°N - 70°N, 60°W - 0°W.

Table 10 - 13 show quality statistics **(Geopotential Height and Windspeed at 100 and 500 hPa)** for all TEMPSHIPS in the area bounded by 0°N - 90°N, 100°W - 40°E and selected TEMP stations within the same area.

Revisions

1. May 95 Monitoring statistics for NOAA-11 removed. Figures 25-27 now show data for NOAA-12
2. May 95 Notes giving details of observations included in wind direction statistics clarified and corrected.
3. August 95 Monitoring statistics for NOAA-14 added with figures 28-30.
4. February 96 Monitoring statistics for GOES-7 have been replaced by statistics for GOES-8 and GOES-9.
5. April 96. 500 km and 120 km SATEMs replaced by 120 km resolution temperature profiles produced locally from the radiances disseminated by NESDIS.
6. February 97 Monitoring statistics for Meteosat 5 have been replaced by statistics for Meteosat 6.
7. Sept 97 Monitoring statistics for NOAA-12 removed. Figures 25-27 now show data for NOAA-11
8. January 1998. Increase in resolution of UKMO global forecast model.
9. April 1998. GOES winds ceased on 2nd March 1998, and were replaced with GOES high resolution winds from 15th.
10. June 1998. Monitoring statistics for Meteosat-6 were replaced by monitoring statistics for Meteosat-7, from 3rd June.
11. June 1998. Corrections in our processing of radiosonde data resulted in a decrease in the number of 500hPa geopotential heights in Figure 8 of about 230 per 24 hours (compared with previous reports), and a small increase in the number of 300hPa winds in Figure 9.
12. July 1998. Meteosat-5 began transmitting winds from 2nd July, at 63 degrees East (over the Indian ocean), and this data is included in the statistics.
13. July 1998. GOES-9 (at 135W) was replaced mid-month by GOES-10 (initially at 105W, moving towards 135W).
14. February 1999. Problems with NOAA-11, and TOVS data ceased to be assimilated from 26 February.
15. March 1999. UKMO introduced 3-D VAR assimilation system on 29 March, and also began assimilating ATOVS data from NOAA-15.
16. May 1999. Included statistics for ATOVS sounding data from NOAA-15.
17. September 1999. Included statistics for high resolution visible winds from Meteosat-5 and Meteosat-7.
18. October 1999. The 3-D VAR assimilation system was upgraded on 19 October, including improvements in the assimilation of ATOVS radiances, use of SSM/I surface wind speed, an improvement in the calculation of surface pressure for SYNOPs, and thinning and revision of observation errors of aircraft data.
19. November 1999. High resolution visible winds from Meteosat-5 and Meteosat-7 removed until used operationally.
20. April 2000. Aireps in Table 4 and Figures 3-7 split into ranges 300-150 hPa (A) and 1000-301 hPa (B).
21. September 2000. Corrected an error affecting the mean positions of a minority of buoys in Table 2.
22. November 2000. An error in the production of Table 6 was corrected. Previously, some sondes with suspect vector winds were being missed.
23. April 2001. Included statistics for ATOVS sounding data from NOAA-16.
24. May 2001. Included statistics for sea surface temperatures from marine surface observations.
25. December 2002. Included statistics for ATOVS sounding data from NOAA-17.
26. December 2002. Meteosat-7 and Meteosat-5 SATOB winds replaced by higher resolution BUFR-coded winds.
27. November 2003. Included temperature and relative humidity statistics for ships, fixed buoys and platforms in Table 1.
28. November 2003. NOAA 17 statistics no longer available due to malfunction of the AMSU-A instrument.

TABLE 1

MONITORING OF MARINE SURFACE OBSERVATIONS
MONTHLY SUSPECT LIST - SHIPS, FIXED BUOYS AND PLATFORMS
MONITORING CENTRE: EXETER
MONTH: Apr 2005

Monitoring procedures

Period	:One calendar month.
Data monitored	:Reports from each unique identifier for ships, fixed buoys and platforms.
Standard of comparison	:Background field from UKMO global model.
Observation times	:All hours
Elements monitored	:Mean sea level pressure (hPa). :Wind speed (m s^{-1}). :Wind direction (Degrees). :Air temperature (Degrees C). :Relative Humidity (%). :Sea surface temperature (Degrees).

Parameters monitored

:NOBS	:Number of observations received excluding duplicates.
:PGE	:Percentage of observations with gross errors.
:%REJ	:Percentage of observations flagged excluding those with gross errors.
:SD	:SD of difference of observations from background values excluding those with gross errors.
:BIAS	:Mean difference of observations from background values excluding those with gross errors. **N.B. a positive bias indicates the wind observation is veered to the background.**
:RMS	:Root Mean Square difference of observations from background values excluding those with gross errors.

GROSS ERROR LIMIT
:15 hPa (pressure)
:25 m s^{-1} (vector wind)
:15 degrees (air temperature)
:10 degrees (sea surface temperature)

SELECTION CRITERIA :NOBS ≥ 20 , and one or more of the following:

1.|bias|	≥ 4 hPa	(pressure),
	≥ 5 m s^{-1}	(wind speed),
	≥ 30 degrees	(direction).
	≥ 3 degrees	(sea surface temperature).
	≥ 4 degrees	(air temperature)
	≥ 15%	(relative humidity)
2.SD	≥ 6 hPa	(pressure),
	≥ 80 degrees	(direction).
	≥ 5 degrees	(sea surface temperature).
	≥ 6 degrees	(air temperature)
	≥ 25%	(relative humidity)
3.PGE	≥ 25	

N.B. Observations of wind direction are only included in the wind direction statistics if the observed OR background wind speed > 5 m s^{-1}

IDENTIFIER	ELEM	NOBS	PGE	%REJ	SD	BIAS	RMS
A8EG9	P	36	0	33	2.1	4.4	4.9
A8GX4	P	50	0	68	1.4	-4.9	5.1
A8XG4	P	24	0	67	0.9	-5.1	5.2
CG2960	P	250	0	60	3.0	4.1	5.1
C6PZ3	P	42	0	5	0.9	4.3	4.4
DGXS	P	46	0	76	1.1	4.6	4.8
ELYY5	P	67	1	24	1.8	8.0	8.2
HQTEST	P	257	0	100	0.7	-12.4	12.4
H9JT	P	51	0	45	3.6	-4.1	5.4
KMJL	P	24	0	0	1.3	-4.8	5.0
KS012	P	169	0	0	0.8	-6.1	6.1
KS049	P	232	0	0	0.8	-4.9	4.9
MGJS8	P	59	0	80	2.9	5.6	6.3
OZWA2	P	36	0	53	3.0	-4.1	5.1
P3BJ8	P	24	0	29	2.4	-4.1	4.8
UASU	P	88	9	67	2.5	-5.6	6.1
UDYG	P	57	0	100	1.7	8.1	8.3
UFXV	P	23	0	52	2.1	5.2	5.6
UGGA	P	27	59	100	7.2	-0.7	7.2
VQGQ4	P	29	0	100	2.0	5.7	6.0
VRZL3	P	40	0	13	1.5	4.5	4.7
VTXL	P	34	0	100	1.8	4.0	4.4
VVCZ	P	21	0	86	1.9	5.1	5.5
V2GR	P	44	0	9	2.6	4.5	5.2
V2MK	P	57	0	42	1.2	4.0	4.2
WCY7054	P	22	0	14	3.5	5.4	6.4
XXXX	P	242	100	100			
ZCDF8	P	27	0	0	0.7	-4.3	4.4
9VVN	P	21	0	43	2.1	-4.0	4.5

IDENTIFIER	ELEM	NOBS	PGE	%REJ	SD	BIAS	RMS
C6FM8	SPEED	20	0	100	4.6	5.4	7.1
C6QF6	SPEED	52	0	100	3.1	8.0	8.6
DHOJ	SPEED	33	9	27	5.4	6.2	8.2
ELWX5	SPEED	406	0	100	4.7	5.3	7.1
VEP717	SPEED	225	0	49	4.1	5.7	7.0
V2AH1	SPEED	23	0	87	5.7	5.8	8.1
4XGS	SPEED	33	3	12	4.4	5.4	6.9
44251	SPEED	203	0	8	3.4	-7.7	8.5

IDENTIFIER	ELEM	NOBS	PGE	%REJ	SD	BIAS	RMS
A8DO8	DIRN.	23	0	0	91.7	-32.4	97.2
ELWX5	DIRN.	259	0	0	29.4	-37.7	47.8
FPOD	DIRN.	23	0	0	104.6	-9.1	105.0
OVYB2	DIRN.	27	0	0	35.2	30.0	46.3
44142	DIRN.	54	0	0	138.3	68.5	154.4
46023	DIRN.	62	0	0	43.2	-30.8	53.1
52077	DIRN.	62	0	0	88.0	-94.2	128.9
52083	DIRN.	79	0	0	15.2	46.0	48.5
63055	DIRN.	490	2	0	84.8	9.1	85.3

IDENTIFIER	ELEM	NOBS	PGE	%REJ	SD	BIAS	RMS
ELZN4	T	22	0	100	1.9	4.0	4.4
KCB53	T	27	0	100	2.3	-4.5	5.1
OZLB2	T	28	0	100	1.8	5.3	5.6
SP33	T	114	0	100	1.9	-5.4	5.7
UAIS	T	20	0	100	2.6	5.8	6.4
UCJJ	T	23	0	100	2.3	-7.0	7.4
UCJT	T	68	0	100	3.3	-4.5	5.6
UGOS	T	21	0	100	1.2	4.8	4.9
WAM7635	T	32	0	100	4.5	4.0	6.0

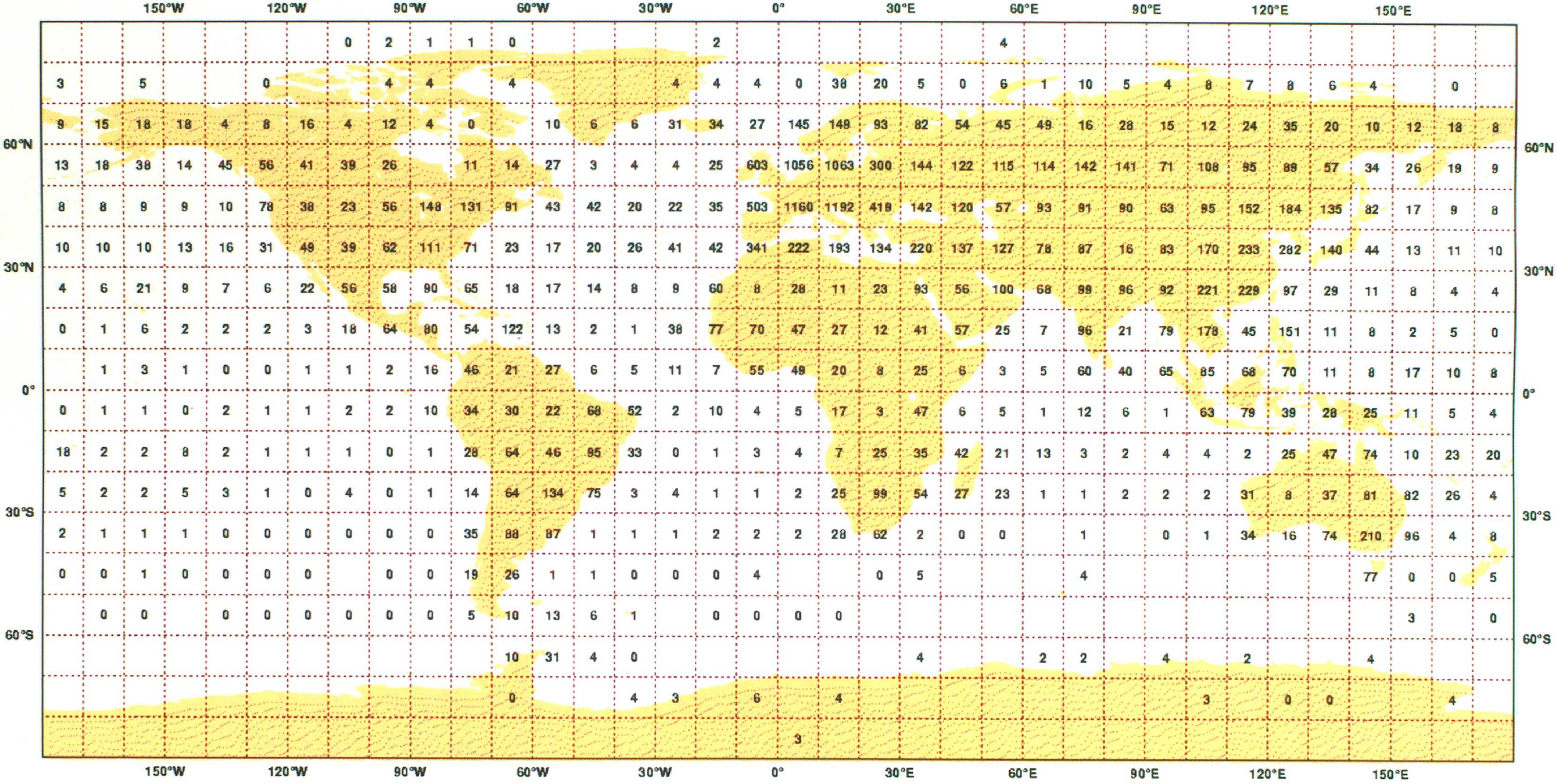
WCW9126	T	110	2	100	3.9	5.3	6.6
WDB6493	T	52	0	100	3.0	4.7	5.6
WE4805	T	43	40	100	1.9	0.1	1.9
WSDX	T	27	11	100	8.9	1.8	9.1
WTEB	T	35	0	100	2.5	6.9	7.3
WTEF	T	73	0	100	3.5	5.9	6.8
WWU8	T	28	4	100	3.4	7.0	7.8
XXXX	T	242	46	100	1.8	12.2	12.3
46081	T	704	3	100	3.1	6.5	7.3
52080	T	51	0	100	2.5	-7.4	7.8

IDENTIFIER	ELEM	NOBS	PGE	%REJ	SD	BIAS	RMS
DBBU	RH	360	0	100	9.0	-78.3	78.9
DEOT	RH	21	0	100	7.9	16.3	18.1
FNAT	RH	43	0	100	7.8	21.0	22.4
HQTEST	RH	257	0	100	15.4	-24.7	29.1
MCLQ4	RH	26	0	100	27.5	-10.7	29.5
OUEV	RH	28	0	100	14.3	15.5	21.1
OUEW	RH	142	0	100	21.8	-15.8	27.0
OZZE2	RH	72	0	100	13.6	-15.1	20.3
VNRL	RH	41	0	100	8.1	19.4	21.0
XXXX	RH	242	0	100	12.9	-49.9	51.5
ZQVN8	RH	21	0	100	7.9	-15.3	17.2
4XGU	RH	24	0	100	27.5	-12.2	30.1
62140	RH	43	0	100	7.5	15.5	17.2
62402	RH	45	0	100	9.5	-15.6	18.3

IDENTIFIER	ELEM	NOBS	PGE	%REJ	SD	BIAS	RMS
CGDR	SST	194	8	107	1.5	6.1	6.3
CGDS	SST	131	2	55	3.1	3.7	4.9
CG2350	SST	149	3	95	3.4	5.0	6.1
C6KJ5	SST	22	0	100	1.6	3.0	3.4
C6RJ6	SST	23	0	100	0.8	-3.1	3.2
DBBA	SST	674	5	86	2.9	5.4	6.1
DBBU	SST	682	11	85	2.9	4.8	5.6
DBBX	SST	506	5	87	4.2	4.5	6.2
DBBXX	SST	59	5	86	4.2	4.3	6.0
DBFC	SST	491	2	72	3.6	4.3	5.6
DGGV	SST	37	0	100	0.8	3.0	3.1
DHEB	SST	52	0	50	2.1	3.3	3.9
DNFA	SST	21	0	100	2.5	3.8	4.6
ELXL3	SST	41	0	100	0.6	4.6	4.6
ELZN4	SST	23	0	78	1.8	5.9	6.2
HZZD	SST	64	8	100	3.1	-3.5	4.7
KS028	SST	170	22	100	3.9	3.5	5.3
KS049	SST	208	0	82	2.4	-3.5	4.2
MZZW8	SST	28	29	79	2.3	1.8	2.9
PCBI	SST	23	0	13	0.4	-3.6	3.6
PDKU	SST	20	10	100	1.6	6.1	6.4
PDTM	SST	31	3	100	1.1	4.5	4.6
PFBF	SST	25	4	52	2.7	-3.3	4.3
PJWQ	SST	35	0	6	1.0	3.0	3.1
UCAD	SST	25	0	100	0.7	3.5	3.6
UCJO	SST	39	0	49	1.2	-3.5	3.7
WAAH	SST	74	1	100	1.9	3.8	4.3
WE4805	SST	42	38	74	2.6	0.8	2.7
WGJF	SST	44	16	100	2.2	-4.7	5.2
3EMQ9	SST	57	0	102	0.9	-3.8	3.9
3FJV4	SST	62	0	89	0.8	4.8	4.8
3FKM8	SST	27	0	107	0.9	-3.7	3.8
3FMV4	SST	30	0	17	0.8	-3.1	3.2
41025	SST	548	0	80	3.1	-3.0	4.3
44014	SST	689	0	100	1.0	-4.7	4.8

44140	SST	163	23	95	2.5	7.5	7.9
45008	SST	106	0	97	0.5	-4.1	4.1
45139	SST	633	0	100	1.6	3.5	3.9
45149	SST	260	0	100	0.3	-4.0	4.0
9HCH7	SST	56	0	100	0.8	3.7	3.8

Figure 1. SHIP/SYNOP mean daily count. APRIL 2005
All hours
Global average number of observations in 24 hours = 21400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60°N 30°N 0° 30°S 60°S
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3 5 0 4 4 4 4 4 4 0 38 20 5 0 6 1 10 5 4 8 7 8 6 4 0
9 15 18 18 4 8 16 4 12 4 0 10 6 6 31 34 27 145 149 93 82 54 45 49 16 28 15 12 24 35 20 10 12 18 8
13 18 38 14 45 56 41 39 26 11 14 27 3 4 4 25 603 1056 1063 300 144 122 115 114 142 141 71 108 95 89 57 34 26 19 9
8 8 9 9 10 78 38 23 56 148 131 91 43 42 20 22 35 503 1160 1192 419 142 120 57 93 91 90 63 95 152 184 135 82 17 9 8
10 10 10 13 16 31 49 39 62 111 71 23 17 20 26 41 42 341 222 193 134 220 137 127 78 87 16 83 170 233 282 140 44 13 11 10
4 6 21 9 7 6 22 56 58 90 65 18 17 14 8 9 60 8 28 11 23 93 56 100 68 99 96 92 221 229 97 29 11 8 4 4
0 1 6 2 2 2 3 18 64 80 54 122 13 2 1 38 77 70 47 27 12 41 57 25 7 96 21 79 178 45 151 11 8 2 5 0
1 3 1 0 0 1 1 2 16 46 21 27 6 5 11 7 55 49 20 8 25 6 3 5 60 40 65 85 68 70 11 8 17 10 8
0 1 1 0 2 1 1 2 2 10 34 30 22 68 52 2 10 4 5 17 3 47 6 5 1 12 6 1 63 79 39 28 25 11 5 4
18 2 2 8 2 1 1 1 0 1 28 64 46 95 33 0 1 3 4 7 25 35 42 21 13 3 2 4 4 2 25 47 74 10 23 20
5 2 2 5 3 1 0 4 0 1 14 64 134 75 3 4 1 1 2 25 99 54 27 23 1 1 2 2 2 31 8 37 81 82 26 4
2 1 1 1 0 0 0 0 0 0 35 88 87 1 1 1 2 2 2 28 62 2 0 0 1 0 1 34 16 74 210 96 4 8
0 0 1 0 0 0 0 0 0 19 26 1 1 0 0 0 4 0 5 4 77 0 0 5
0 0 0 0 0 0 0 0 5 10 13 6 1 0 0 0 0 3 0
10 31 4 0 4 2 2 4 2 4
0 4 3 6 4 3 0 0 4
3

TABLE 2

MONITORING OF MARINE SURFACE OBSERVATIONS
MONTHLY SUSPECT LIST - DRIFTING BUOYS
MONITORING CENTRE: EXETER
MONTH: Apr 2005

Monitoring procedures

Period :One calendar month.

Data monitored :Reports from each unique identifier for drifting buoys.

Standard of comparison :Background field from UKMO global model.

Position :Average latitude and longitude for period.

Observation times : All hours

Elements monitored
:Mean sea level pressure (hPa).
:Wind speed (m s^{-1}).
:Wind direction (degrees).
:Sea surface temperature (degrees).

Parameters monitored

:NOBS :Number of observations received excluding duplicates.

:PGE :Percentage of observations with gross errors.

:%REJ : Percentage of observations flagged excluding those with gross errors

:SD :SD of difference of observations from background values excluding those with gross errors.

:BIAS :Mean difference of observations from background values excluding those with gross errors.
N.B. a positive bias indicates the wind observation is veered to the background.

:RMS :Root Mean Square difference of observations from background values excluding those with gross errors.

GROSS ERROR LIMIT
:15 hPa (pressure)
:25 m s^{-1} (vector wind)
:10 degrees (sea surface temperature)

SELECTION CRITERIA : NOBS ≥ 20 , and one or more of the following:

1.|bias|
≥ 4 hPa (pressure),
≥ 5 m s^{-1} (wind speed),
≥ 30 degrees (direction).
≥ 3 degrees (sea surface temperature).

2.SD
≥ 6 hPa (pressure),
≥ 80 degrees (direction).
≥ 5 degrees (sea surface temperature).

3.PGE ≥ 25.

N.B. Observations of wind direction are only included in the wind direction statistics if the observed OR background wind speed > 5 m s^{-1}

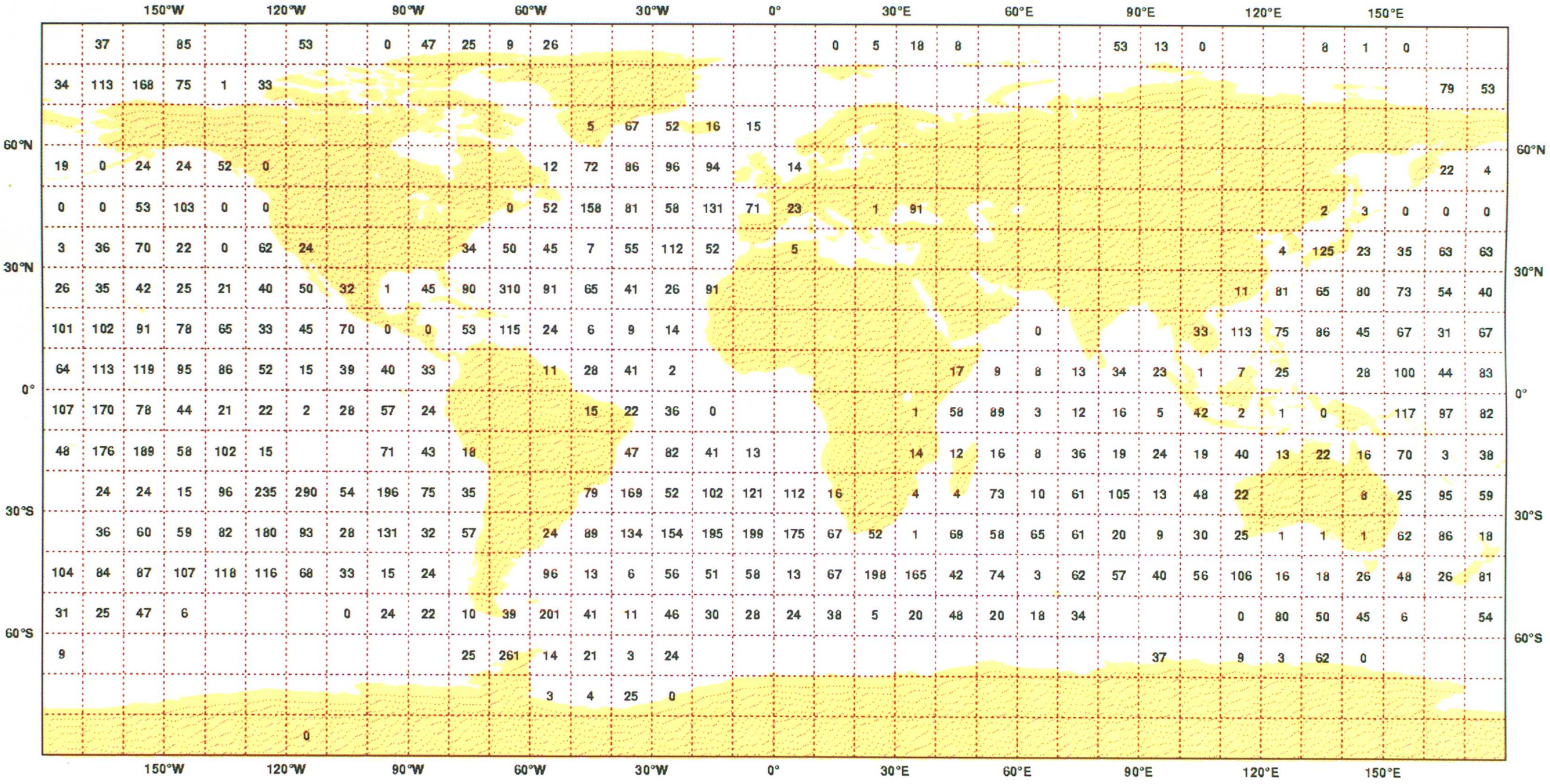
IDENTIFIER	LAT.	LONG.	ELEM	NOBS	PGE	%REJ	SD	BIAS	RMS
25522	83.6	88.5	P	1950	82	100	7.7	-1.8	7.9
25573	84.7	149.4	P	31	29	100	6.2	-3.4	7.1
41921	27.3	-75.0	P	515	2	100	2.5	6.1	6.6
41924	24.3	-72.4	P	279	3	97	2.7	7.9	8.4
61556	41.2	29.1	P	44	36	100	8.5	-5.3	10.0

IDENTIFIER	LAT.	LONG.	ELEM	NOBS	PGE	%REJ	SD	BIAS	RMS
41921	27.3	-75.0	SPEED	483	1	100	2.8	-5.0	5.7

IDENTIFIER	LAT.	LONG.	ELEM	NOBS	PGE	%REJ	SD	BIAS	RMS
56506	-17.6	120.2	DIRN.	28	0	0	23.0	*****	123.6

IDENTIFIER	LAT.	LONG.	ELEM	NOBS	PGE	%REJ	SD	BIAS	RMS
17559	-33.7	-18.0	SST	696	52	100	0.5	9.0	9.1
22610	16.7	107.5	SST	109	0	100	0.3	-7.9	7.9
32538	-5.0	-94.7	SST	355	0	100	0.2	-3.7	3.7
32620	-6.0	-101.5	SST	384	0	100	0.2	-4.2	4.2
32623	2.0	-86.0	SST	383	0	100	0.3	-4.1	4.1
32693	16.2	-176.5	SST	817	0	100	0.1	3.2	3.2
32741	4.4	-96.1	SST	385	0	100	0.6	-4.1	4.1
41912	30.5	-60.4	SST	194	0	100	0.3	-3.9	3.9
44504	46.9	-47.1	SST	362	85	100	0.7	9.0	9.1
44512	50.0	-50.5	SST	748	2	100	1.5	6.3	6.5
44843	62.3	-26.9	SST	148	27	28	1.0	-0.4	1.1
46972	17.2	127.3	SST	311	0	100	0.3	5.1	5.1
52696	25.1	121.9	SST	68	0	84	1.0	-3.1	3.3
53576	20.6	110.4	SST	163	0	100	0.4	-6.3	6.3
56619	-64.0	112.2	SST	247	1	100	0.8	7.8	7.9
65602	60.5	-39.9	SST	250	0	78	1.8	3.9	4.3

Figure 2. DRIFTER mean daily count. APRIL 2005
All hours
Global average number of observations in 24 hours = 17840



	37		85			53		0	47	25	9	26							0	5	18	8				53	13	0			8	1	0		
34	113	168	75	1	33																													79	53
													5	67	52	16	15																		
19	0	24	24	52	0							12	72	86	96	94		14																22	4
0	0	53	103	0	0						0	52	158	81	58	131	71	23		1	91										2	3	0	0	0
3	36	70	22	0	62	24				34	50	45	7	55	112	52		5												4	125	23	35	63	63
26	35	42	25	21	40	50	32	1	45	90	310	91	65	41	26	91													11	81	65	80	73	54	40
101	102	91	78	65	33	45	70	0	0	53	115	24	6	9	14									0				33	113	75	86	45	67	31	67
64	113	119	95	86	52	15	39	40	33			11	28	41	2							17	9	8	13	34	23	1	7	25		28	100	44	83
107	170	78	44	21	22	2	28	57	24				15	22	36	0					1	58	89	3	12	16	5	42	2	1	0		117	97	82
48	176	189	58	102	15			71	43	18				47	82	41	13				14	12	16	8	36	19	24	19	40	13	22	16	70	3	38
	24	24	15	96	235	290	54	196	75	35			79	169	52	102	121	112	16		4	4	73	10	61	105	13	48	22			8	25	95	59
	36	60	59	82	180	93	28	131	32	57		24	89	134	154	195	199	175	67	52	1	69	58	65	61	20	9	30	25	1	1	1	62	86	18
104	84	87	107	118	116	68	33	15	24			96	13	6	56	51	58	13	67	198	165	42	74	3	62	57	40	56	106	16	18	26	48	26	81
31	25	47	6				0	24	22	10	39	201	41	11	46	30	28	24	38	5	20	48	20	18	34				0	80	50	45	6		54
9										25	261	14	21	3	24												37		9	3	62	0			
												3	4	25	0																				
						0																													

TABLE 3

MONITORING OF LAND SURFACE OBSERVATIONS
MONTHLY SUSPECT LIST - SYNOPS & AUTOSYNOPS
MONITORING CENTRE: EXETER
MONTH: Apr 2005

Monitoring procedures

Period		:One calendar month.
Data monitored		:Reports from each unique identifier for synops & autosynops.
Standard of comparison		:Background field from UKMO global model.
Observation times		:00, 06, 12, 18 UTC
Elements monitored		:Surface pressure (hPa).
Parameters monitored	:HT(m)	:Station height (in metres) as given in WMO No. 9 Vol A
	:RP	:Pressure reporting practice M=mean sea level pressure (hPa) reported. S=Station level pressure reported. 8=Geopotential height (m) of 850 hPa surface reported. 7=Geopotential height (m) of 700 hPa surface reported.
	:NOBS	:Number of observations received excluding duplicates.
	:NGE	:Number of observations with gross errors.
	:PGE	:Percentage of observations with gross errors.
	:%REJ	:Percentage of observations flagged excluding those with gross errors.
	:SD	:SD of difference of observations from background values excluding those with gross errors.
	:BIAS	:Mean difference of observations from background values excluding those with gross errors.
	:RMS	:Root Mean Square difference of observations from background values excluding those with gross errors.
GROSS ERROR LIMIT	:15 hPa	(pressure)
SELECTION CRITERIA	:NOBS	≥ 20 ,and one or more of the following:
	1.|bias|	≥ 4 hPa
	2. SD	≥ 6 hPa
	3.PGE	≥ 25.

N.B. For stn ht ≥ 500m, mslp is that calculated from station level pressure where available.
For stn ht < 500m, mslp is that as reported by the station where available.

SUSPECT SYNOPS (PRESSURE) BY WMO REGION APR 200

WMO REGION 1:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
60320	35.9N	5.4W	2	MS	53	0	0	0	1.6	-9.3	9.4
61492	16.1N	13.5W	18	MS	63	1	2	5	1.5	4.2	4.5
62056	32.8N	21.9E	625	S8	85	0	0	2	2.7	-5.6	6.2
63210	11.3N	49.2E	2	M	26	1	4	4	2.0	-4.1	4.6
63671	1.8N	40.1E	244	M	112	1	1	6	1.1	-4.6	4.7
63801	4.9S	29.6E	882	S8	40	0	0	0	0.8	8.4	8.4
63881	8.0S	31.6E	1923	S	38	2	5	3	0.7	13.5	13.5
65355	9.8N	1.1E	342	MS	89	0	0	0	0.8	-12.3	12.3
67295	19.1S	33.5E	731	S8	21	10	48	100	0.5	13.9	13.9
68014	19.6S	18.1E	1411	S8	75	1	1	0	0.6	-7.5	7.5
68030	18.5S	25.6E	1071	S8	83	0	0	0	4.4	8.5	9.6
68102	19.9S	16.4E	1343	S8	96	0	0	0	0.6	5.7	5.7
68300	26.6S	15.1E	16	MS	66	19	29	100	0.5	-14.0	14.0
68312	26.5S	18.1E	1067	S8	74	0	0	3	1.4	4.6	4.8
68325	25.4S	25.4E	1275	8	78	0	0	0	0.7	4.0	4.1
68396	26.5S	31.3E	641	S8	54	0	0	4	0.8	4.5	4.6
68575	30.0S	30.0E	1175	S8	119	119	100	0			

WMO REGION 2:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
25248	67.3N	168.0E	353	MS	61	0	0	8	2.4	4.2	4.8
30554	54.5N	113.6E	995	MS	119	2	2	1	1.0	12.1	12.1
35416	49.1N	54.7E	128	S	117	1	1	1	0.7	4.0	4.1
36982	41.9N	78.2E	3635	S7	119	2	2	0	0.6	6.3	6.3
38565	40.6N	65.7E	485	MS	119	119	100	0			
38846	38.4N	70.0E	1437	S8	67	2	3	0	2.5	-5.1	5.7
40435	27.0N	44.1E	991	MS	58	1	2	0	1.6	7.2	7.4
40700	39.6N	47.9E	45	MS	118	1	1	0	1.0	-5.5	5.6
40713	37.4N	46.3E	1475	MS	118	43	36	0	1.0	13.4	13.4
40741	36.5N	61.2E	235	MS	117	0	0	0	1.0	-4.8	4.9
40743	36.2N	57.7E	978	MS	118	0	0	0	0.9	4.7	4.8
40757	35.6N	53.4E	1171	MS	118	1	1	5	1.3	4.3	4.5
40780	33.6N	46.4E	1362	MS	118	0	0	0	0.7	4.9	4.9
40854	29.1N	58.4E	1067	MS	118	0	0	0	1.0	11.1	11.1
41252	23.4N	56.5E	244	MS	100	0	0	58	0.7	-8.4	8.4
41254	23.1N	57.6E	1755	S8	115	115	100	0			
41396	16.0N	48.9E	700	MS	56	0	0	5	3.1	5.7	6.5
41466	13.7N	44.1E	1402	8	38	0	0	42	1.6	-5.3	5.5
47022	40.8N	128.2E	1224	S	91	1	1	1	0.9	4.6	4.7
47678	33.1N	139.8E	79	MS	119	0	0	0	0.7	-9.1	9.1
48924	21.1N	101.5E	644	S	35	2	6	0	1.1	11.2	11.3
48925	20.7N	102.0E	550	S	34	1	3	0	1.0	-9.9	10.0
48938	19.2N	101.7E	326	MS	35	14	40	0	0.6	14.1	14.1
48952	15.7N	106.4E	168	MS	30	0	0	0	0.8	-4.3	4.4
50978	45.3N	130.9E	234	MS	119	0	0	0	0.7	-5.8	5.8
52866	36.6N	101.8E	2262	S	118	0	0	0	1.0	-4.3	4.4
53646	38.3N	109.8E	1058	MS	119	0	0	0	0.6	-12.4	12.4
56462	29.0N	101.5E	2994	S	119	0	0	0	1.4	9.0	9.1
56768	25.0N	101.5E	1773	S	119	0	0	0	0.8	-5.4	5.5
57816	26.6N	106.7E	1074	MS	119	76	64	0	0.4	-14.5	14.5
59663	21.8N	112.0E	22	MS	119	0	0	0	0.6	-7.7	7.7

WMO REGION 3:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS

80099	7.1N	70.7W	122	MS	31	0	0	0	1.1	-5.1	5.2
82181	2.0S	54.1W	146	MS	85	0	0	0	1.3	5.3	5.5
82586	5.2S	39.3W	212	MS	88	1	1	0	0.7	-4.2	4.3
82704	7.6S	72.7W	170	MS	71	0	0	0	1.2	-4.7	4.9
83235	12.4S	46.4W	604	MS	85	1	1	0	0.7	5.9	5.9
83332	14.1S	46.4W	826	MS	85	11	13	0	0.7	13.6	13.6
83470	17.9S	50.9W	727	MS	86	1	1	2	1.1	-5.6	5.7
83531	18.6S	46.5W	940	MS	90	0	0	0	0.6	-6.2	6.2
83836	25.5S	50.6W	837	MS	90	0	0	0	0.8	-4.4	4.5
84425	5.9S	76.1W	179	MS	24	0	0	0	1.2	5.8	5.9
84452	6.8S	79.8W	29	M	110	0	0	0	0.8	4.8	4.9
84455	6.5S	76.4W	281	MS	83	0	0	0	1.8	7.4	7.6
84472	7.1S	78.5W	2620	S	56	1	2	0	0.8	-4.8	4.9
84474	7.2S	76.7W	350	S	24	1	4	4	1.2	10.5	10.6
84686	13.6S	72.0W	3248	S	107	0	0	0	0.6	-4.1	4.1
84688	13.7S	73.4W	3444	S	41	1	2	2	0.6	-12.1	12.1
84782	18.1S	70.3W	468	MS	80	0	0	3	1.6	4.2	4.5
85140	14.3S	67.4W	140	MS	58	0	0	0	1.1	7.8	7.9
85264	18.5S	64.1W	1998	S	58	58	100	0			
85312	19.8S	63.9W	992	S	47	1	2	0	1.3	-10.3	10.4
85406	18.3S	70.3W	55	M	119	0	0	0	1.1	4.3	4.4

WMO REGION 4:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
71060	52.5N	116.1W	230	MS	119	119	100	0			
71177	57.1N	61.5W	834	S	118	0	0	0	1.4	-4.1	4.3
71181	47.1N	55.3W	29	MS	119	0	0	0	0.9	-5.9	6.0
71506	67.0N	136.2W	720	MS	119	0	0	3	1.4	-4.5	4.7
71581	54.5N	128.6W	215	MS	118	68	58	0	6.8	-7.5	10.1
76055	31.0N	114.9W	440	MS	52	52	100	0			
76225	28.6N	106.1W	1435	MS	79	0	0	0	0.8	-4.3	4.4
76382	25.5N	103.5W	1124	MS	77	0	0	1	0.9	4.0	4.1
76543	22.0N	98.8W	104	MS	76	1	1	1	0.9	9.8	9.8
76658	19.2N	103.7W	494	MS	41	1	2	2	0.6	5.6	5.6
76762	17.5N	99.5W	1265	MS	85	0	0	0	0.6	5.7	5.7
76773	17.8N	97.8W	1650	MS	27	0	0	4	0.9	5.9	6.0
76843	16.8N	93.1W	528	MS	107	1	1	1	1.0	-4.5	4.6
78588	17.2N	87.5W	-259	M	114	114	100	0			

WMO REGION 5:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
94130	14.8S	131.9E	120	MS	118	0	0	0	0.9	4.7	4.8
96505	3.7N	115.7E	-9999	8	29	29	100	0			
97284	8.6S	120.5E	1170	S8	73	3	4	37	0.7	4.7	4.8
97378	10.7S	123.1E	1	MS	42	42	100	0			

WMO REGION 6:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
01360	61.9N	7.9E	711	MS	95	0	0	1	1.2	6.3	6.4
06239	54.9N	44.7E	49	MS	357	42	12	0	7.6	-2.4	8.0
06672	46.9N	8.6E	449	S8	118	40	34	1	1.2	0.4	1.3
06685	47.0N	9.1E	515	MS	114	0	0	11	1.2	5.7	5.8
08912	42.9N	0.8W	1434	MS	25	25	100	0			
08922	42.8N	0.2W	1660	MS	26	26	100	0			
10850	48.8N	10.7E	457	MS	357	0	0	0	0.5	-5.7	5.7
11116	47.5N	10.8E	870	MS	59	0	0	0	0.6	4.2	4.2
13269	44.3N	19.9E	176	MS	117	0	0	1	1.0	7.6	7.7
14554	44.9N	18.4E	136	S	56	3	5	0	0.7	-13.7	13.7

16344	39.3N	16.4E	1710	S8	266	0	0	0	1.4	4.1	4.3
16450	37.6N	14.3E	940	S8	108	0	0	1	0.9	-7.2	7.3
16538	40.1N	9.3E	1022	S	32	0	0	0	1.0	9.0	9.1
17203	38.9N	40.5E	1177	S8	116	0	0	0	1.0	5.0	5.1
17521	35.2N	33.5E	285	MS	98	98	100	0			
40030	35.1N	36.8E	301	M	79	0	0	1	1.4	-4.5	4.7

ANTARCTIC:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
89004	71.7S	2.8W	815	MS	115	0	0	0	1.7	-7.6	7.8
89257	75.4S	59.9W	40	S	644	0	0	0	1.5	-7.3	7.5
89266	72.2S	60.2W	91	S	322	292	91	0	3.0	-3.3	4.5
89272	75.0S	70.8W	1395	S	29	29	100	0			
89512	70.8S	11.8E	140	MS	119	0	0	0	1.4	-4.1	4.3
89610	65.9S	113.1E	90	S	316	3	1	0	1.4	-9.2	9.3
89614	66.7S	111.5E	500	S	319	319	100	0			
89744	74.0S	43.1E	3353	S	331	0	0	0	0.7	7.3	7.3
89769	78.5S	168.4E	50	S	701	0	0	0	2.0	-4.3	4.7
89811	66.7S	112.8E	1366	S	326	1	0	0	1.4	-5.3	5.5
89815	66.6S	110.7E	63	S	330	1	0	0	1.7	-4.0	4.3
89868	79.9S	170.0E	60	S	344	0	0	0	1.1	-4.8	4.9

TABLE 4A

MONTHLY MONITORING OF AIRCRAFT OBSERVATIONS
MONITORING CENTRE: EXETER
MONTH: Apr 2005

Monitoring procedures

Period :One calendar month.

Data monitored :Statistics for each airline carrier.

Area monitored :90°N - 90°S, 180°W - 180°E.

Standard of comparison :Background field from UKMO global model.

Observation times :All hours combined.

Level(s) monitored :300.0 - 150.0 hPa

Elements monitored :TEMP in °C ; WIND in m s^{-1}

Parameters monitored

:N REP. :Number of observations received excluding duplicates.

:PG :Percentage of observations with gross errors.

:PR :Percentage of observations rejected by quality control including rejections from the duplicate check.

:PC :Percentage of observations with calm winds.

:RMS :Root Mean Square difference of observations from background values excluding those with gross errors in Temperature & vector wind.

:BIAS :Mean difference of observations from background values excluding those with gross errors in Temperature & Wind Speed.

GROSS ERROR LIMITS :10.0 °C ; 60 m s^{-1} Vector Wind

SELECTION CRITERIA :N REP $\geq$ 20

NB: All American ACARS data are grouped together and statistics are shown at the bottom of the table as "US ACARS".

		TEMPERATURE						WIND			
IDENT.	N.REP.	PG	PR	RMS	BIAS	N.REP.	PG	PR	PC	RMS	BIAS
AAH	3489	1	45	1.4	-0.2	3471	0	45	0	5.9	0.1
AAL	5341	0	40	1.3	-0.2	5055	0	42	0	6.3	0.0
AAR	998	1	5	1.6	-0.7	975	0	6	0	8.0	-0.4
ACA	2193	0	11	1.4	0.1	1774	0	14	0	7.4	0.4
ACI	121	0	10	1.2	0.4	122	0	10	0	6.0	0.4
AEA	1645	0	3	1.5	-0.2	1389	0	4	0	7.9	0.0
AFL	641	1	2	1.6	0.3	333	0	2	0	7.2	0.5
AFR	1458	1	6	1.4	0.1	1438	0	8	0	7.4	0.2
AJM	259	0	4	1.3	-0.2	230	0	4	0	6.2	1.0
AJX	296	0	3	1.6	0.7	298	0	5	0	6.9	0.4
AMT	2197	0	43	1.2	0.0	2182	0	44	0	6.1	0.0
AMX	392	1	5	1.9	0.1	346	0	53	0	9.1	-0.1
ANA	24	0	4	1.4	-0.4	27	0	4	0	5.6	-0.7
ANZ	5976	0	25	1.2	0.2	5966	0	25	0	6.3	0.5
ARG	25	0	40	2.2	-0.5	24	0	38	0	5.3	-1.4
ATN	105	0	100	4.0	-1.8	92	0	77	0	13.4	4.3
AUA	44	2	57	5.6	4.5	41	0	2	0	7.5	0.0
AVA	300	1	4	1.6	0.4	300	0	6	0	8.6	0.1
AVN	116	0	46	1.6	0.3	112	2	46	0	9.1	0.6
AZA	671	1	3	1.5	-0.1	560	0	5	0	7.6	0.4
BAF	27	0	0	1.2	-0.7	22	0	0	0	4.6	0.0
BAL	418	0	6	1.5	-0.2	406	0	8	0	8.4	0.1
BAW	580	1	21	1.9	-0.7	383	0	22	0	8.2	0.3
BBR	214	2	4	1.5	0.7	213	0	100	0	9.5	0.2
BHP	24	0	13	1.2	-0.8	22	0	14	0	13.1	0.7
BPA	777	0	5	1.6	0.4	784	0	6	0	7.6	0.0
BSK	38	5	37	3.0	-0.1	36	0	31	0	8.8	-1.4
BWA	426	1	4	1.5	-0.2	369	0	2	0	6.5	0.2
CAL	75	1	5	1.5	-0.1	80	0	9	0	9.3	-0.7
CCA	371	3	19	2.5	0.0	392	1	100	0	11.8	-0.7
CES	375	2	13	2.4	-0.5	376	1	11	0	8.9	0.0
CFC	42	0	5	1.2	0.6	37	3	11	0	7.5	2.0
CFG	1054	0	4	1.4	0.2	988	0	5	0	7.4	-0.1
CKK	100	1	9	1.8	0.8	110	1	9	0	7.7	-0.1
CKS	375	1	27	1.5	0.1	335	0	30	0	7.7	0.0
CLX	395	1	4	1.5	-0.5	251	0	5	0	6.9	0.2
CNJ	48206	0	76	1.2	0.5	48206	0	76	0	5.1	0.5
COA	229	1	21	1.6	0.1	168	0	21	0	8.4	0.2
CRL	1046	1	4	1.7	0.5	1025	0	6	0	8.5	0.5
CSH	23	4	17	2.7	-1.1	23	0	13	0	13.0	0.2
CSN	124	2	15	1.5	0.2	125	1	18	0	10.3	0.0
CUB	237	0	1	1.5	-0.2	221	1	4	0	7.5	0.8
DAL	2875	0	40	1.5	0.2	2757	0	42	0	6.0	0.0
DCS	34	0	6	1.4	-0.7	26	0	12	0	10.5	0.0
DHL	139	3	100	6.5	-5.4	74	0	20	0	12.4	3.4
DLH	851	0	7	1.5	-0.1	804	0	9	0	7.3	0.6
DRD	279	1	6	2.3	0.3	275	0	2	0	8.3	0.1
EDW	85	0	5	1.7	-0.1	72	0	6	0	7.4	1.3
EEZ	186	1	9	2.0	0.3	186	0	8	0	6.5	0.9
EIA	350	0	18	1.5	0.2	347	0	100	0	16.6	3.3
EIN	58	3	14	2.3	0.5	30	0	10	0	8.0	-0.2
ELY	75	1	1	1.5	-0.4	47	0	4	0	10.2	0.0
ETH	34	0	9	2.2	-0.4	34	0	6	0	4.4	1.1
EVA	136	1	6	1.6	-0.1	161	1	4	0	5.9	0.4
FCA	134	0	1	1.3	-0.2	130	1	40	0	6.1	0.1
FDX	1939	0	52	1.3	0.2	1741	0	52	0	5.9	0.3
FIN	229	0	2	1.3	0.0	155	0	3	0	7.0	1.1
FJI	715	1	28	1.8	0.9	707	0	27	0	6.9	1.2
FOM	911	1	24	1.2	0.1	906	0	25	0	5.7	0.0

IDENT.	TEMPERATURE N.REP.	PG	PR	RMS	BIAS	WIND N.REP.	PG	PR	PC	RMS	BIAS
FWI	601	1	3	1.7	-0.4	598	0	3	0	7.5	0.4
GCO	124	1	10	1.4	0.1	116	0	58	0	10.1	1.5
GRL	65	0	2	1.8	0.5	48	0	0	0	4.7	1.3
GTI	173	2	23	2.9	1.3	169	0	12	0	7.6	0.9
HAL	4197	2	41	1.8	0.5	4143	0	40	0	6.7	-0.1
HMY	60	0	35	1.2	-0.2	57	0	37	0	7.3	-0.4
HXL	264	0	3	1.4	0.0	229	0	3	0	6.9	0.2
IBE	4157	0	4	1.5	0.3	4129	0	5	0	8.1	0.4
ICE	951	1	4	1.5	0.1	543	0	3	0	5.7	0.6
ISR	55	0	13	1.5	-0.4	36	0	17	0	9.8	1.6
IWD	431	0	2	1.6	0.0	429	0	3	0	7.6	0.7
JAL	1935	0	4	1.7	0.1	1923	0	5	0	7.7	0.2
JAZ	852	0	4	1.4	0.5	856	0	4	0	7.4	0.0
JBU	36	0	0	1.3	0.1	37	0	3	0	8.0	-1.9
KAI	54	0	52	2.3	0.8	53	0	55	0	9.2	0.6
KAL	1276	1	6	1.6	0.0	1278	0	7	0	6.9	0.1
KLM	1368	0	6	1.5	-0.1	1105	0	7	0	6.2	0.1
LAN	643	0	3	1.6	-0.3	645	0	3	0	6.0	0.6
LAP	36	0	42	2.7	1.7	37	5	49	0	12.3	0.8
LDI	292	1	3	1.9	0.0	257	0	2	0	7.0	0.6
LNE	139	0	4	1.4	0.1	136	1	6	0	8.7	-0.4
LOB	58	2	19	1.7	-1.3	59	0	19	0	10.2	0.2
LOT	311	1	4	1.7	-0.2	198	0	4	0	6.6	0.4
LTU	1018	1	4	1.6	0.0	820	0	4	0	7.5	0.6
LXJ	41	0	49	1.6	0.1	43	0	49	0	4.5	0.7
LXR	26	0	0	1.1	-0.4	26	0	8	0	12.4	-0.6
MAS	282	1	11	1.5	0.1	261	0	13	0	6.7	0.0
MMZ	192	1	58	3.6	1.3	197	0	6	0	8.5	0.1
MPD	430	0	1	1.6	0.2	408	0	2	0	6.7	0.1
MPH	431	1	2	1.6	-0.7	328	0	2	0	7.2	-0.1
MXA	51	6	14	2.5	0.7	51	4	100	0	12.9	1.6
MYT	156	1	4	1.6	-0.1	134	0	1	0	6.7	0.3
NAO	419	0	38	1.4	-0.5	419	1	39	0	7.0	0.1
NCA	1061	0	3	1.4	0.1	766	1	5	0	6.5	0.1
NOS	55	2	5	1.2	-0.1	47	0	2	0	6.4	1.4
NVR	42	2	2	1.4	0.0	29	0	3	0	5.8	-0.5
NWA	8268	1	17	1.7	0.1	8152	0	18	0	8.1	0.0
NZL	3653	0	8	1.0	0.0	3652	0	8	0	4.3	0.1
OAE	512	0	26	1.6	-0.5	425	0	33	0	8.7	0.9
OOM	93	0	6	1.6	-1.1	75	1	7	0	4.7	0.3
PAC	481	0	8	1.8	-0.3	439	0	7	0	6.8	0.0
PAL	1484	0	7	1.4	-0.1	1447	0	8	0	7.8	0.3
PAO	240	0	39	1.6	0.6	240	0	39	0	6.4	0.5
PBI	657	1	35	1.2	-0.2	657	0	35	0	5.5	0.3
PLM	277	1	3	2.1	1.2	230	0	5	0	8.9	-0.1
PUA	23	0	52	2.4	1.0	21	5	62	0	11.9	3.5
QFA	3712	0	40	1.1	0.3	3707	0	40	0	5.7	0.3
QQA	75	4	43	1.1	0.2	77	0	40	0	4.8	0.0
RAM	355	1	6	2.0	0.4	272	0	65	0	9.1	-0.2
RCH	298	2	100	3.1	-0.5	213	0	100	0	11.0	1.2
RJA	31	0	10	2.4	1.8	20	0	0	0	5.7	1.6
RRR	119	0	3	1.5	0.2	116	0	6	0	6.6	0.4
RYN	199	1	43	1.1	-0.3	203	0	41	0	5.6	-0.2
RZO	735	0	4	1.6	-0.3	712	0	5	0	8.1	0.2
SAA	48	0	0	1.1	0.0	48	0	2	0	6.0	0.8
SEU	240	2	7	2.1	0.0	221	0	4	0	6.3	0.2
SIA	416	0	2	1.3	0.3	416	0	2	0	4.2	0.2
SLM	122	0	1	0.9	0.0	122	0	2	0	5.3	0.2
SOO	20	0	0	1.5	0.8	36	0	0	0	6.4	-0.2

		TEMPERATURE						WIND			
IDENT.	N.REP.	PG	PR	RMS	BIAS	N.REP.	PG	PR	PC	RMS	BIAS
SQC	53	0	6	1.2	0.3	53	0	6	0	4.8	0.5
SSV	43	0	19	2.0	0.2	38	0	18	0	8.0	-0.7
SVH	355	0	6	1.2	0.8	355	0	6	0	6.7	-0.1
TAG	37	0	41	2.2	-0.4	35	0	37	0	6.4	0.2
TAM	28	0	36	2.1	0.4	28	0	39	0	10.8	-0.5
TAP	716	1	2	1.4	-0.2	663	0	3	0	6.5	0.0
THA	280	0	7	1.5	0.5	280	0	6	0	4.2	0.5
THT	955	0	22	1.0	0.6	950	0	22	0	5.3	1.2
TPA	59	0	7	2.0	0.4	55	0	4	0	8.2	-1.5
TSC	96	0	3	1.6	-0.8	65	0	5	0	8.5	0.6
TSO	65	2	11	1.3	-0.8	64	2	14	0	6.3	-0.7
TUB	108	0	6	1.5	0.0	64	0	11	0	9.6	0.8
UAE	700	0	7	1.4	0.5	700	0	7	0	4.3	0.2
UAL	179949	0	97	1.4	-0.2	179848	0	97	0	5.0	0.5
UPS	1812	0	57	1.6	0.3	1775	0	57	0	7.2	0.1
USA	98	0	2	1.7	0.3	86	0	3	0	8.8	-0.3
VHF	32	0	0	0.8	0.2	33	0	3	0	11.1	-0.8
VHO	21	14	43	2.1	1.7	21	0	33	0	6.0	1.4
VIR	109	0	1	1.4	-0.1	74	1	4	0	8.9	0.7
VRG	36	6	50	2.7	1.1	35	0	100	0	17.4	0.8
VVJ	65	17	28	1.6	-0.2	69	0	16	0	10.9	1.2
VVR	57	0	23	1.9	0.9	57	0	26	0	9.4	0.1
WOA	405	1	15	1.7	0.4	370	1	15	0	7.4	0.7
XLA	200	1	2	1.4	-0.3	197	0	5	0	8.3	0.0
YSS	30	0	3	1.1	-0.4	30	0	0	0	7.3	1.6

		TEMPERATURE						WIND			
IDENT.	N.REP.	PG	PR	RMS	BIAS	N.REP.	PG	PR	PC	RMS	BIAS
AU	44638	0	15	1.1	0.6	44703	0	15	0	5.0	0.5
B-	8139	0	79	1.7	0.9	8139	0	74	0	5.9	-0.1
EU	231870	0	28	1.2	0.3	231869	0	27	0	4.4	0.3
HK	4107	0	26	1.2	0.4	4107	0	26	0	5.0	0.3
JP	56124	0	63	1.5	0.6	56124	0	62	0	5.0	0.0
LN	37	0	49	1.9	0.3	39	0	54	0	16.4	3.8
MK	2520	0	63	2.0	1.8	2495	0	63	0	6.9	2.5
RY	23	4	9	1.1	0.1	22	0	5	0	5.6	0.3
SA	5489	0	7	1.1	0.7	5489	0	7	0	5.3	0.0
TN	58	2	22	1.6	0.3	57	0	28	0	10.4	-0.1
UA	110254	0	99	1.4	-0.2	110210	0	99	0	5.0	0.5
N	1006	2	25	1.9	0.3	853	0	29	0	6.8	0.4
US ACARS	1068158	0	67	1.5	0.3	1068132	0	66	0	5.3	0.5

TABLE 4B

MONTHLY MONITORING OF AIRCRAFT OBSERVATIONS
MONITORING CENTRE: EXETER
MONTH: Apr 2005

Monitoring procedures

Period :One calendar month.

Data monitored :Statistics for each airline carrier.

Area monitored :90°N - 90°S, 180°W - 180°E.

Standard of comparison :Background field from UKMO global model.

Observation times :All hours combined.

Level(s) monitored :1000.0 – 300.1 hPa

Elements monitored :TEMP in °C ; WIND in m s^{-1}

Parameters monitored

:N REP. :Number of observations received excluding duplicates.

:PG :Percentage of observations with gross errors.

:PR :Percentage of observations rejected by quality control including rejections from the duplicate check.

:PC :Percentage of observations with calm winds.

:RMS :Root Mean Square difference of observations from background values excluding those with gross errors in Temperature & vector wind.

:BIAS :Mean difference of observations from background values excluding those with gross errors in Temperature & Wind Speed.

GROSS ERROR LIMITS :10.0 °C ; 60 m s^{-1} Vector Wind

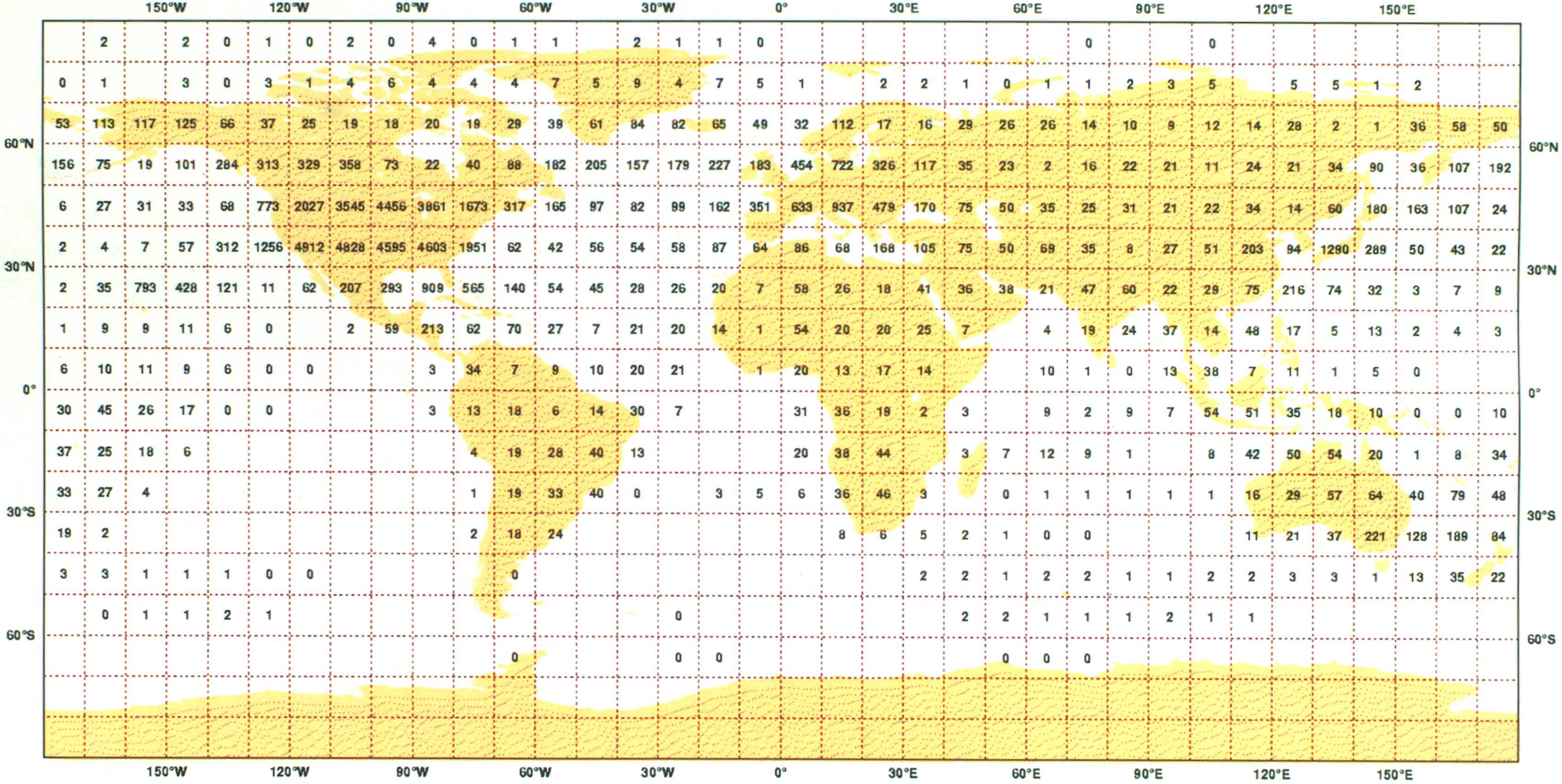
SELECTION CRITERIA :N REP ≥ 20

NB: All American ACARS data are grouped together and statistics are shown at the bottom of the table as "US ACARS".

		TEMPERATURE					WIND				
IDENT.	N.REP.	PG	PR	RMS	BIAS	N.REP.	PG	PR	PC	RMS	BIAS
AAL	355	0	45	1.3	-0.3	350	0	44	0	5.3	1.2
ACA	27	0	22	2.9	-0.5	26	0	15	0	8.9	0.4
AFR	71	0	7	1.4	-0.3	70	1	9	0	5.1	0.2
AMT	58	0	29	1.7	-0.4	51	0	29	0	9.4	1.6
ANZ	261	3	15	1.1	0.0	266	0	14	0	6.1	0.6
AXF	86	5	50	1.3	0.2	89	0	52	0	12.3	2.0
BAF	65	0	3	2.0	0.2	41	0	7	0	8.5	-0.6
BAL	31	0	6	1.2	-0.5	31	0	10	0	7.0	1.2
CFC	69	0	7	1.2	0.4	68	0	9	0	6.1	0.0
CKS	56	0	38	1.6	-0.6	48	2	42	0	6.1	0.6
CNJ	482701	0	83	1.8	0.8	482701	0	83	0	5.4	-0.1
CRL	32	3	3	1.2	0.1	30	0	0	0	5.3	0.5
CWC	46	0	4	1.1	0.2	22	0	9	0	6.7	-1.6
DAF	20	20	25	1.0	-0.4	20	0	10	0	9.9	1.2
DAL	162	0	33	1.5	-0.2	143	0	36	0	6.2	0.9
DLH	268	0	13	1.3	-0.1	267	0	22	0	10.6	0.3
EIA	29	0	21	1.1	0.1	29	0	100	0	20.0	6.4
FDX	632	0	43	1.3	0.3	483	0	39	0	7.3	-0.3
FXI	25	0	20	4.1	1.4	21	0	10	0	10.6	-1.6
GCO	58	0	7	1.0	0.2	58	0	50	0	8.8	-0.2
HAL	619	2	44	2.1	0.6	608	0	41	0	6.7	1.1
IBE	46	4	20	2.0	0.1	48	0	10	0	6.3	-0.4
ICE	54	0	6	1.1	-0.1	27	0	11	0	7.2	0.6
JAL	48	0	2	1.3	-0.1	48	2	6	0	8.1	0.0
JAZ	47	2	4	1.5	0.4	47	0	2	0	5.1	-0.8
KAL	77	0	4	1.4	-0.1	78	0	5	0	6.7	-0.8
KIW	24	8	33	2.5	1.1	24	0	25	0	7.2	-0.9
KLM	62	0	0	1.4	0.0	47	0	2	0	6.2	-0.4
LAN	46	0	0	1.0	0.2	45	0	0	0	4.4	0.7
MPH	60	0	0	1.3	-0.4	37	0	0	0	6.2	0.8
NCA	60	0	2	1.5	-0.4	43	0	2	0	5.5	1.1
NWA	231	0	10	1.5	0.0	230	0	12	0	7.8	-0.2
NZL	18464	0	53	1.1	0.2	18462	0	53	0	4.2	0.3
OAE	52	0	13	1.1	-0.1	38	0	32	0	11.1	1.4
OCE	26	0	4	3.2	2.6	26	0	4	0	4.4	-0.4
PAC	52	0	4	1.1	-0.3	41	0	7	0	7.5	-1.2
PAL	34	0	18	1.0	-0.6	34	0	18	0	7.7	0.6
QFA	174	1	40	1.3	0.0	173	0	38	0	5.1	0.4
RCH	48	0	100	4.5	-1.9	40	0	100	0	11.6	1.1
RRR	150	9	27	3.2	1.8	151	1	16	0	10.2	0.2
SIA	83	1	6	1.1	0.7	85	0	5	0	4.5	0.6
SVH	15662	0	60	1.6	0.8	15662	0	60	0	4.7	0.6
THA	22	0	5	1.0	0.9	22	0	5	0	4.0	1.1
THT	37	0	65	1.2	-0.2	37	0	65	0	5.8	1.5
UAE	97	0	4	1.1	0.5	98	0	5	0	5.3	1.5
UAL	148139	0	99	1.0	-0.2	147900	0	99	0	4.0	0.3
UPS	169	1	56	1.2	-0.2	164	0	59	0	10.0	1.0
VVR	29	0	34	2.4	1.5	52	0	37	0	3.9	-0.2
WOA	233	3	11	1.5	0.5	156	1	33	0	16.4	3.4

		TEMPERATURE					WIND				
IDENT.	N.REP.	PG	PR	RMS	BIAS	N.REP.	PG	PR	PC	RMS	BIAS
AU	56002	0	60	1.2	0.5	56036	0	60	0	3.8	0.4
B-	54225	0	80	1.4	0.6	54225	0	75	0	4.5	0.3
EU	688815	0	70	1.0	0.2	684067	0	70	0	3.7	0.1
HK	3866	0	77	1.3	0.6	3866	0	77	0	4.2	-0.1
JP	272443	0	81	1.4	0.4	272443	0	81	0	4.4	0.5
MK	2608	0	75	1.3	0.6	2575	0	75	0	4.2	0.8
SA	4270	0	59	1.4	0.0	4270	0	59	0	4.7	0.5
UA	98164	0	99	1.2	-0.2	98050	0	99	0	4.1	0.3
N	39	8	36	3.3	-0.3	27	0	26	0	10.0	1.4
US ACARS	1548289	0	79	1.2	0.3	1543166	0	79	0	4.2	0.2

Figure 3a. AIRCRAFT 300 - 150 hPa mean daily count. APRIL 2005
Observations with O-B vector difference greater than 60 ms-1 excluded
Global average number of observations in 24 hours = 61626



	2		2	0	1	0	2	0	4	0	1	1		2	1	1	0								0			0							
0	1		3	0	3	1	4	6	4	4	4	7	5	9	4	7	5	1		2	2	1	0	1	1	2	3	5		5	5	1	2		
53	113	117	125	66	37	25	19	18	20	19	29	39	61	84	82	65	49	32	112	17	16	29	26	26	14	10	9	12	14	28	2	1	36	58	50
156	75	19	101	284	313	329	358	73	22	40	88	182	205	157	179	227	183	454	722	326	117	35	23	2	16	22	21	11	24	21	34	90	36	107	192
6	27	31	33	68	773	2027	3545	4456	3861	1673	317	165	97	82	99	162	351	633	937	479	170	75	50	35	25	31	21	22	34	14	60	180	163	107	24
2	4	7	57	312	1256	4912	4828	4595	4603	1951	62	42	56	54	58	87	64	86	68	168	105	75	50	69	35	8	27	51	203	94	1290	289	50	43	22
2	35	793	428	121	11	62	207	293	909	565	140	54	45	28	26	20	7	58	26	18	41	36	38	21	47	60	22	29	75	216	74	32	3	7	9
1	9	9	11	6	0		2	59	213	62	70	27	7	21	20	14	1	54	20	20	25	7		4	19	24	37	14	48	17	5	13	2	4	3
6	10	11	9	6	0	0			3	34	7	9	10	20	21		1	20	13	17	14			10	1	0	13	38	7	11	1	5	0		
30	45	26	17	0	0				3	13	18	6	14	30	7			31	36	19	2	3		9	2	9	7	54	51	35	18	10	0	0	10
37	25	18	6							4	19	28	40	13				20	38	44		3	7	12	9	1		8	42	50	54	20	1	8	34
33	27	4								1	19	33	40	0		3	5	6	36	46	3		0	1	1	1	1	1	16	29	57	64	40	79	48
19	2									2	18	24							8	6	5	2	1	0	0				11	21	37	221	128	189	84
3	3	1	1	1	0	0					0										2	2	1	2	2	1	1	2	2	3	3	1	13	35	22
	0	1	1	2	1										0							2	2	1	1	1	2	1	1						
											0				0	0							0	0	0										

Figure 3b. AIRCRAFT 1000 - 301 hPa mean daily count. APRIL 2005
Observations with O-B vector difference greater than 60 ms-1 excluded
Global average number of observations in 24 hours = 112930

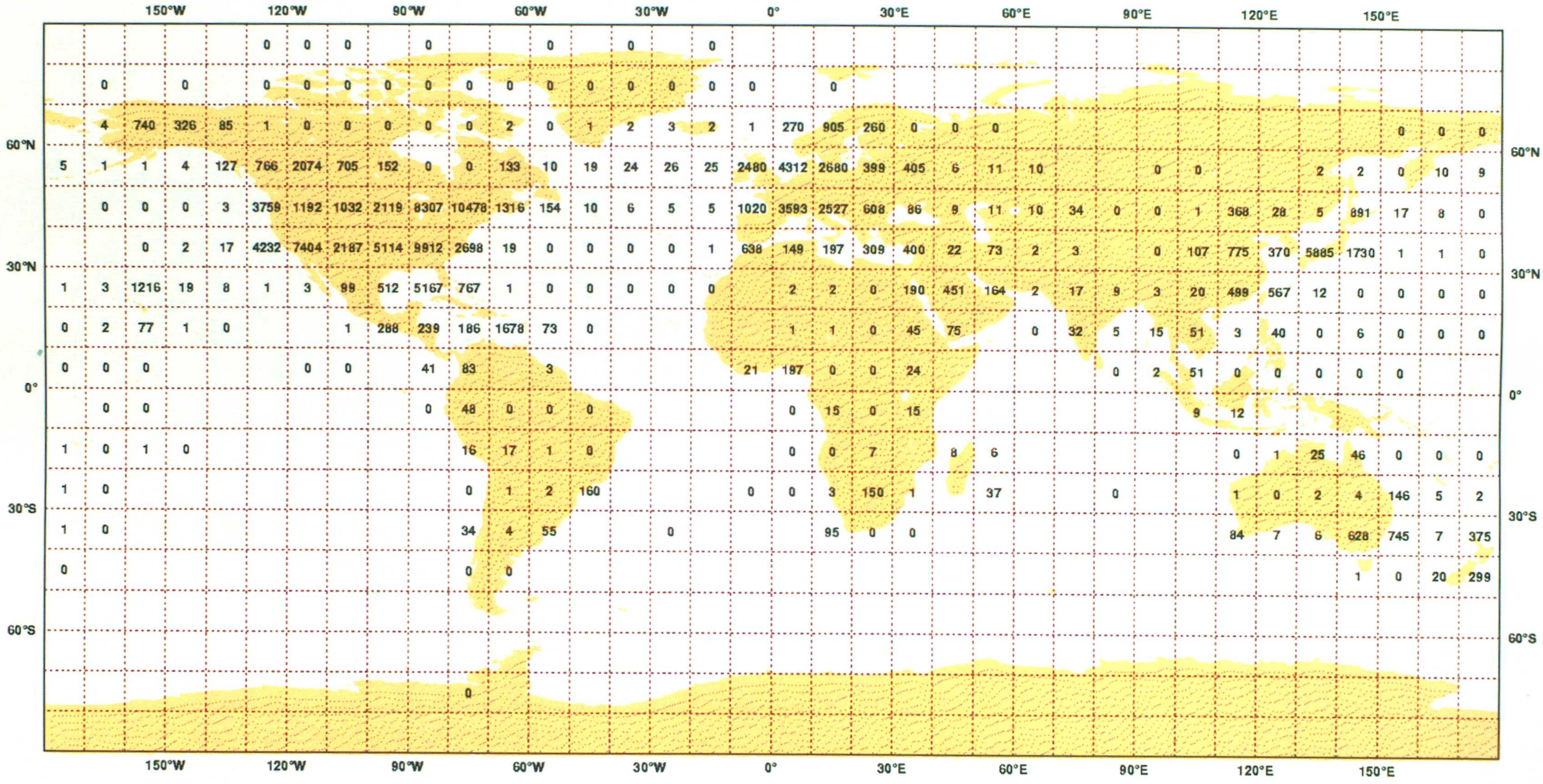

150°W
120°W
90°W
60°W
30°W
0°
30°E
60°E
90°E
120°E
150°E
60°N
30°N
0°
30°S
60°S
0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
4 740 326 85 1 0 0 0 0 0 2 0 1 2 3 2 1 270 905 260 0 0 0 0 0 0
5 1 1 4 127 766 2074 705 152 0 0 133 10 19 24 26 25 2480 4312 2680 399 405 6 11 10 0 0 2 2 0 10 9
0 0 0 3 3759 1192 1032 2119 8307 10478 1316 154 10 6 5 5 1020 3593 2527 608 86 9 11 10 34 0 0 1 368 28 5 891 17 8 0
0 2 17 4232 7404 2187 5114 9912 2698 19 0 0 0 0 1 638 149 197 309 400 22 73 2 3 0 107 775 370 5885 1730 1 1 0
1 3 1216 19 8 1 3 99 512 5167 767 1 0 0 0 0 0 2 2 0 190 451 164 2 17 9 3 20 499 567 12 0 0 0 0
0 2 77 1 0 1 288 239 186 1678 73 0 1 1 0 45 75 0 32 5 15 51 3 40 0 6 0 0 0
0 0 0 0 0 41 83 3 21 197 0 0 24 0 2 51 0 0 0 0 0
0 0 0 48 0 0 0 0 15 0 15 9 12
1 0 1 0 16 17 1 0 0 0 7 8 6 0 1 25 46 0 0 0
1 0 0 1 2 160 0 0 3 150 1 37 0 1 0 2 4 146 5 2
1 0 34 4 55 0 95 0 0 84 7 6 628 745 7 375
0 0 0 1 0 20 299
0

Figure 4a. AIRCRAFT 300 - 150 hPa mean winds. APRIL 2005
Observations with O-B vector difference greater than 60 ms-1 excluded
Arrows are plotted where greater than 30 obs are present

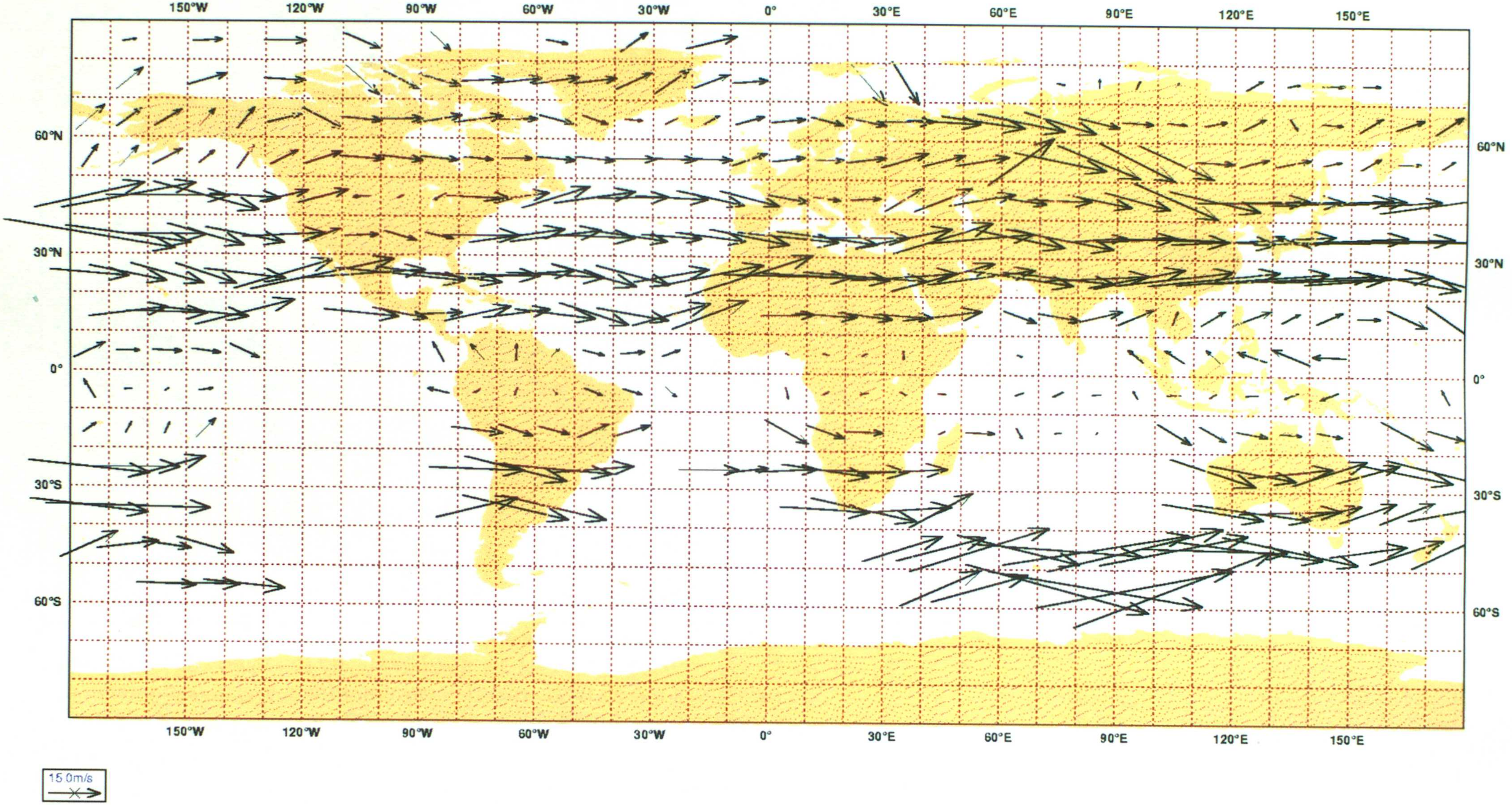

150°W
120°W
90°W
60°W
30°W
0°
30°E
60°E
90°E
120°E
150°E
60°N
30°N
0°
30°S
60°S
15.0m/s

Figure 4b. AIRCRAFT 1000 - 301 hPa mean winds. APRIL 2005
Observations with O-B vector difference greater than 60 ms-1 excluded
Arrows are plotted where greater than 30 obs are present

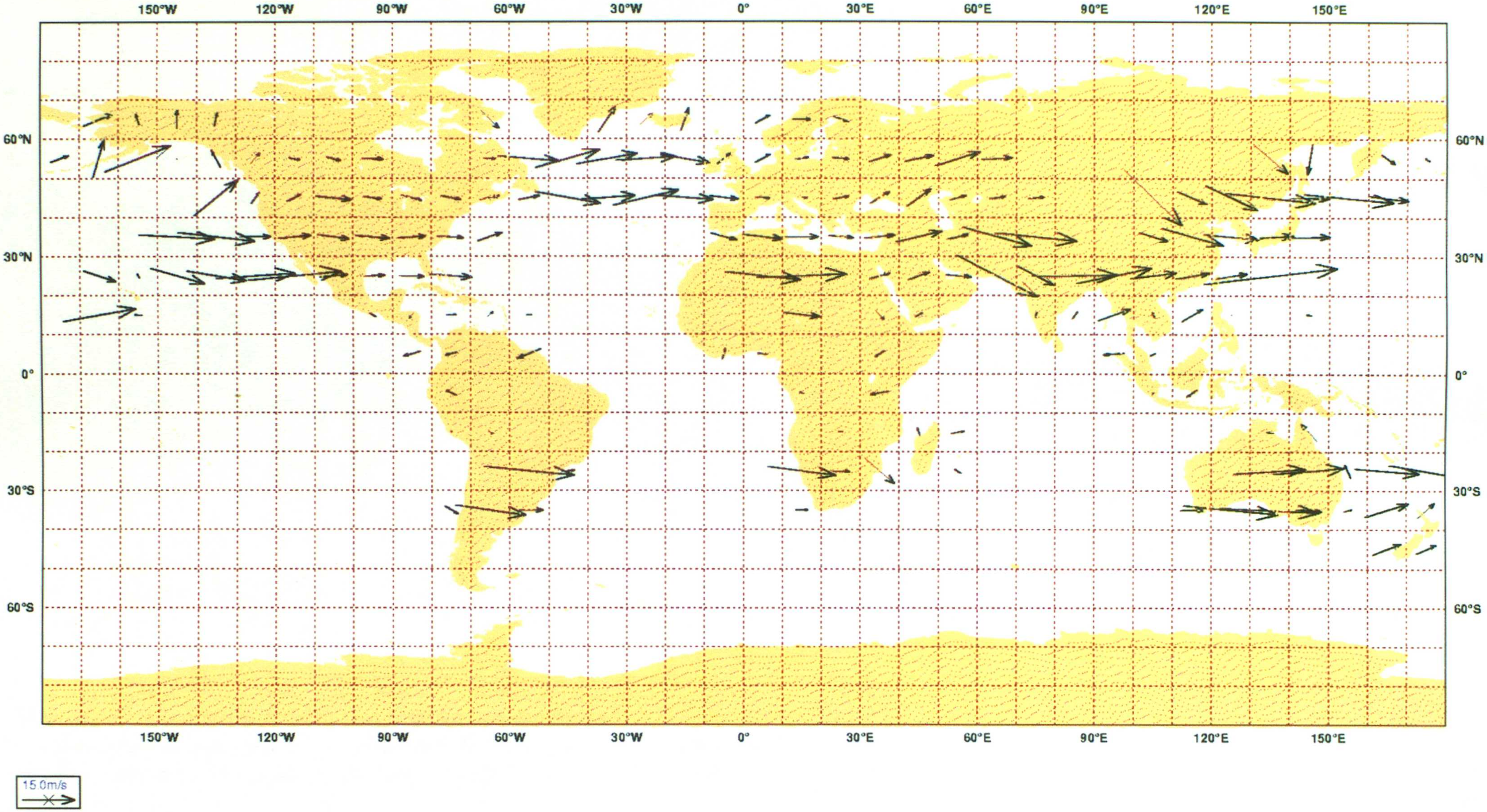

150°W
120°W
90°W
60°W
30°W
0°
30°E
60°E
90°E
120°E
150°E
60°N
30°N
0°
30°S
60°S
15.0m/s

Figure 5a. AIRCRAFT 300 - 150 hPa mean O-B winds. APRIL 2005
Observations with O-B vector difference greater than 60 ms-1 excluded
Arrows are plotted where greater than 30 obs are present

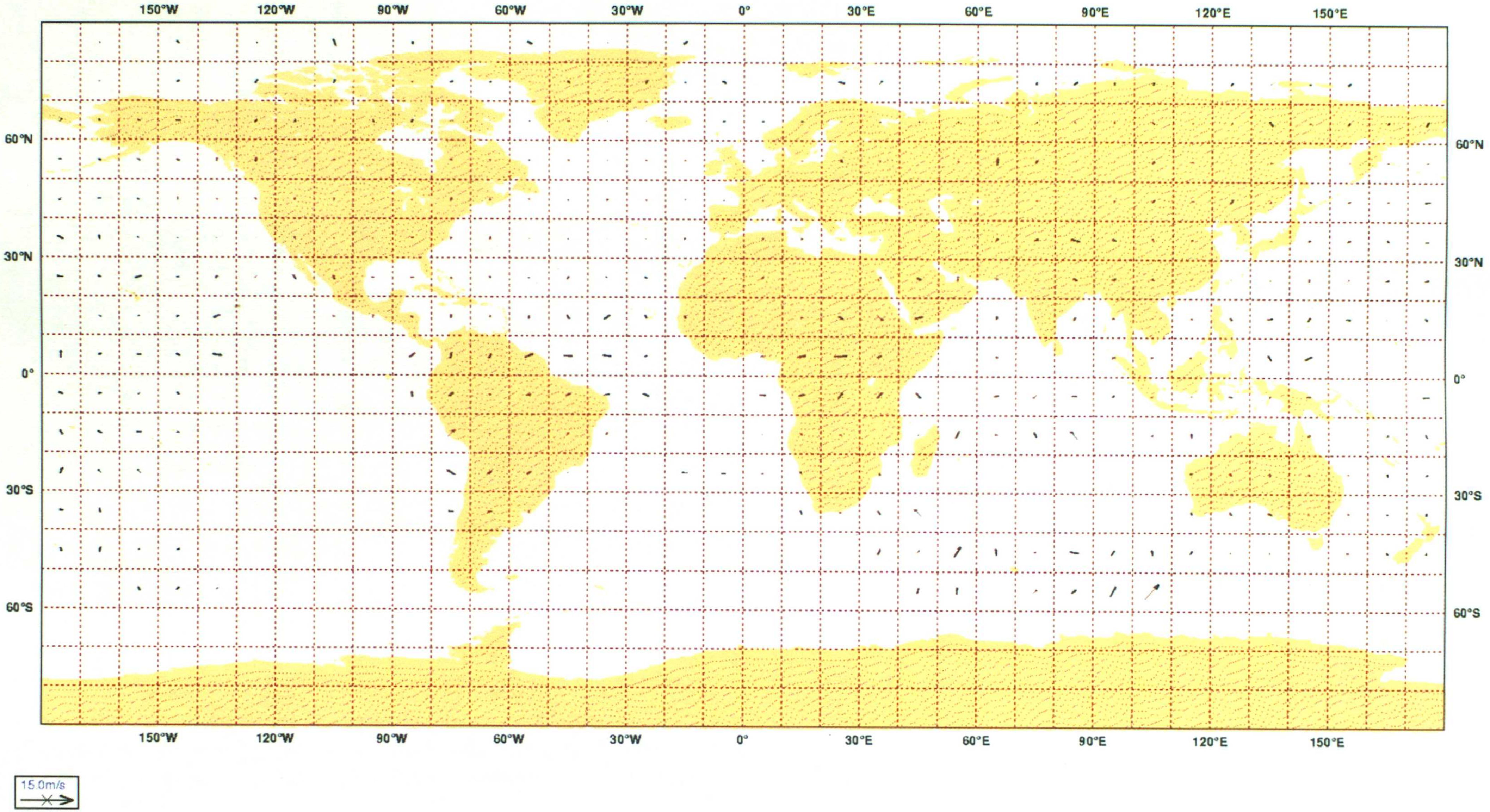

150°W
120°W
90°W
60°W
30°W
0°
30°E
60°E
90°E
120°E
150°E
60°N
30°N
0°
30°S
60°S
15.0m/s

Figure 5b. AIRCRAFT 1000 - 301 hPa mean O-B winds. APRIL 2005
Observations with O-B vector difference greater than 60 ms-1 excluded
Arrows are plotted where greater than 30 obs are present

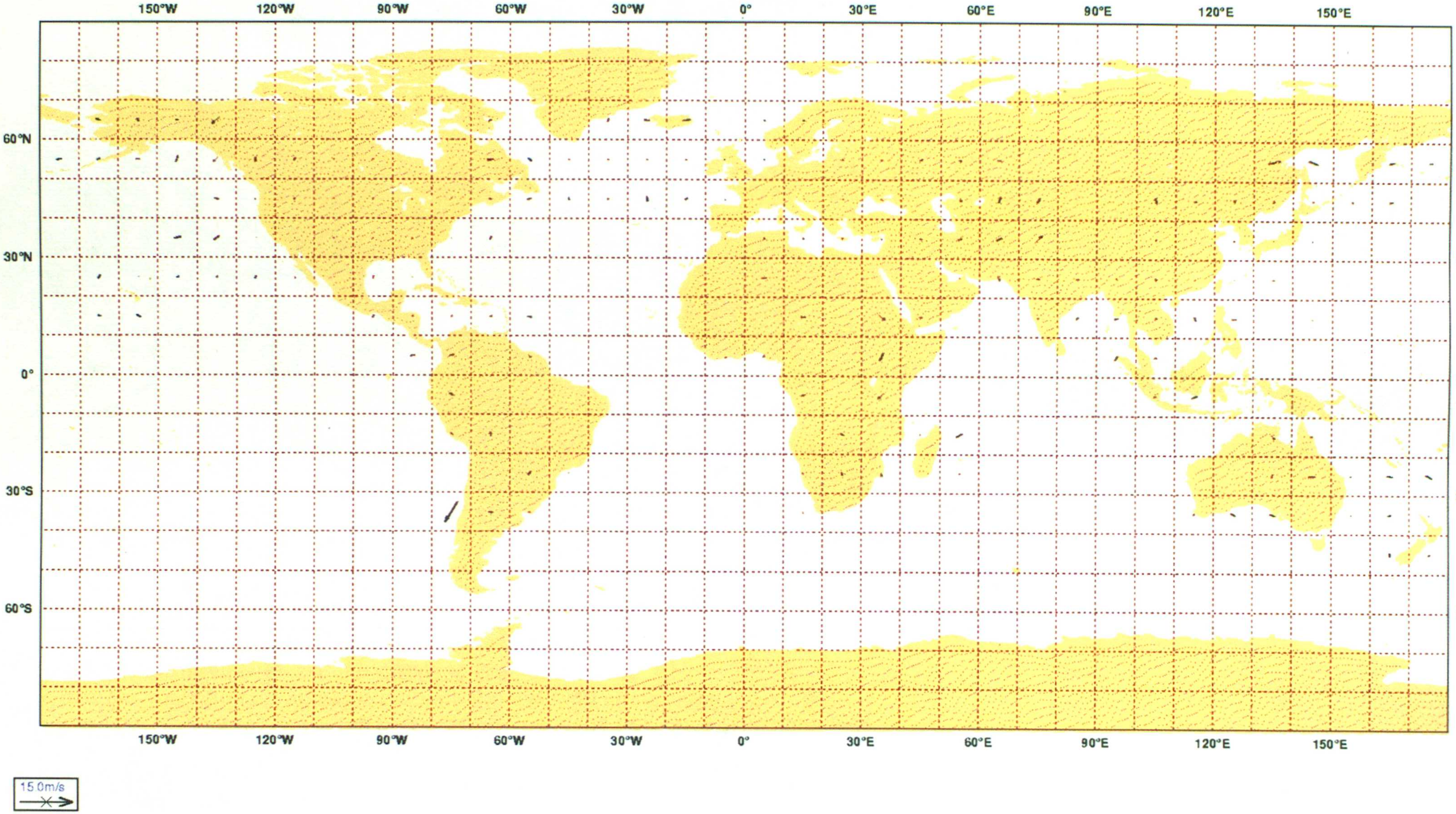

150°W
120°W
90°W
60°W
30°W
0°
30°E
60°E
90°E
120°E
150°E
60°N
30°N
0°
30°S
60°S
15.0m/s

Figure 6a. AIRCRAFT 300 - 150 hPa mean O-B speeds (ms-1). APRIL 2005
Observations with O-B vector difference greater than 60 ms-1 excluded
Values are printed where greater than 30 obs are present

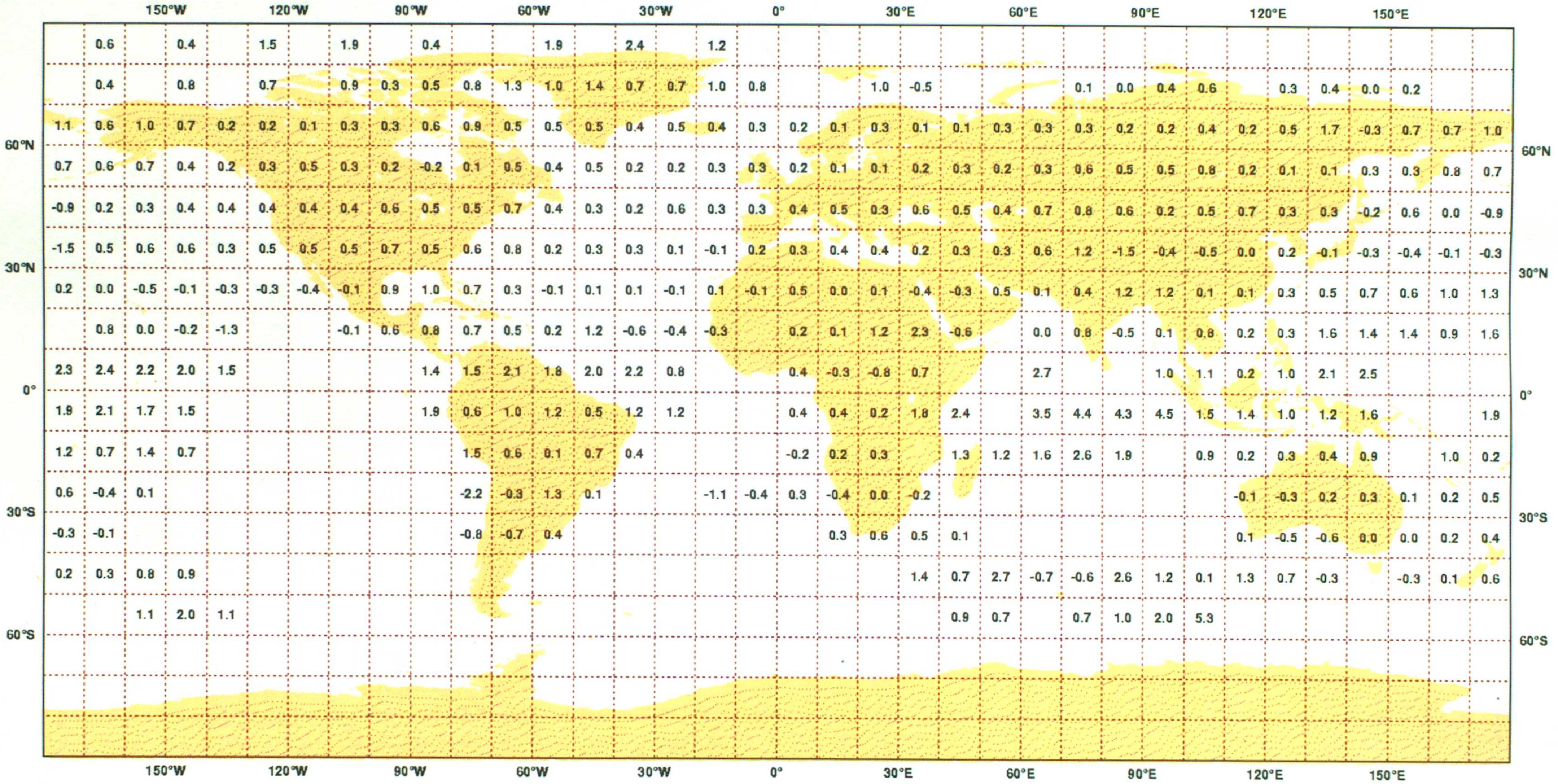

150°W
120°W
90°W
60°W
30°W
0°
30°E
60°E
90°E
120°E
150°E
60°N
30°N
0°
30°S
60°S
0.6 0.4 1.5 1.9 0.4 1.9 2.4 1.2
0.4 0.8 0.7 0.9 0.3 0.5 0.8 1.3 1.0 1.4 0.7 0.7 1.0 0.8 1.0 -0.5 0.1 0.0 0.4 0.6 0.3 0.4 0.0 0.2
1.1 0.6 1.0 0.7 0.2 0.2 0.1 0.3 0.3 0.6 0.9 0.5 0.5 0.5 0.4 0.5 0.4 0.3 0.2 0.1 0.3 0.1 0.1 0.3 0.3 0.3 0.2 0.2 0.4 0.2 0.5 1.7 -0.3 0.7 0.7 1.0
0.7 0.6 0.7 0.4 0.2 0.3 0.5 0.3 0.2 -0.2 0.1 0.5 0.4 0.5 0.2 0.2 0.3 0.3 0.2 0.1 0.1 0.2 0.3 0.2 0.3 0.6 0.5 0.5 0.8 0.2 0.1 0.1 0.3 0.3 0.8 0.7
-0.9 0.2 0.3 0.4 0.4 0.4 0.4 0.4 0.6 0.5 0.5 0.7 0.4 0.3 0.2 0.6 0.3 0.3 0.4 0.5 0.3 0.6 0.5 0.4 0.7 0.8 0.6 0.2 0.5 0.7 0.3 0.3 -0.2 0.6 0.0 -0.9
-1.5 0.5 0.6 0.6 0.3 0.5 0.5 0.5 0.7 0.5 0.6 0.8 0.2 0.3 0.3 0.1 -0.1 0.2 0.3 0.4 0.4 0.2 0.3 0.3 0.6 1.2 -1.5 -0.4 -0.5 0.0 0.2 -0.1 -0.3 -0.4 -0.1 -0.3
0.2 0.0 -0.5 -0.1 -0.3 -0.3 -0.4 -0.1 0.9 1.0 0.7 0.3 -0.1 0.1 0.1 -0.1 0.1 -0.1 0.5 0.0 0.1 -0.4 -0.3 0.5 0.1 0.4 1.2 1.2 0.1 0.1 0.3 0.5 0.7 0.6 1.0 1.3
0.8 0.0 -0.2 -1.3 -0.1 0.6 0.8 0.7 0.5 0.2 1.2 -0.6 -0.4 -0.3 0.2 0.1 1.2 2.3 -0.6 0.0 0.8 -0.5 0.1 0.8 0.2 0.3 1.6 1.4 1.4 0.9 1.6
2.3 2.4 2.2 2.0 1.5 1.4 1.5 2.1 1.8 2.0 2.2 0.8 0.4 -0.3 -0.8 0.7 2.7 1.0 1.1 0.2 1.0 2.1 2.5
1.9 2.1 1.7 1.5 1.9 0.6 1.0 1.2 0.5 1.2 1.2 0.4 0.4 0.2 1.8 2.4 3.5 4.4 4.3 4.5 1.5 1.4 1.0 1.2 1.6 1.9
1.2 0.7 1.4 0.7 1.5 0.6 0.1 0.7 0.4 -0.2 0.2 0.3 1.3 1.2 1.6 2.6 1.9 0.9 0.2 0.3 0.4 0.9 1.0 0.2
0.6 -0.4 0.1 -2.2 -0.3 1.3 0.1 -1.1 -0.4 0.3 -0.4 0.0 -0.2 -0.1 -0.3 0.2 0.3 0.1 0.2 0.5
-0.3 -0.1 -0.8 -0.7 0.4 0.3 0.6 0.5 0.1 0.1 -0.5 -0.6 0.0 0.0 0.2 0.4
0.2 0.3 0.8 0.9 1.4 0.7 2.7 -0.7 -0.6 2.6 1.2 0.1 1.3 0.7 -0.3 -0.3 0.1 0.6
1.1 2.0 1.1 0.9 0.7 0.7 1.0 2.0 5.3

Figure 6b. AIRCRAFT 1000 - 301 hPa mean O-B speeds (ms-1). APRIL 2005
Observations with O-B vector difference greater than 60 ms-1 excluded
Values are printed where greater than 30 obs are present

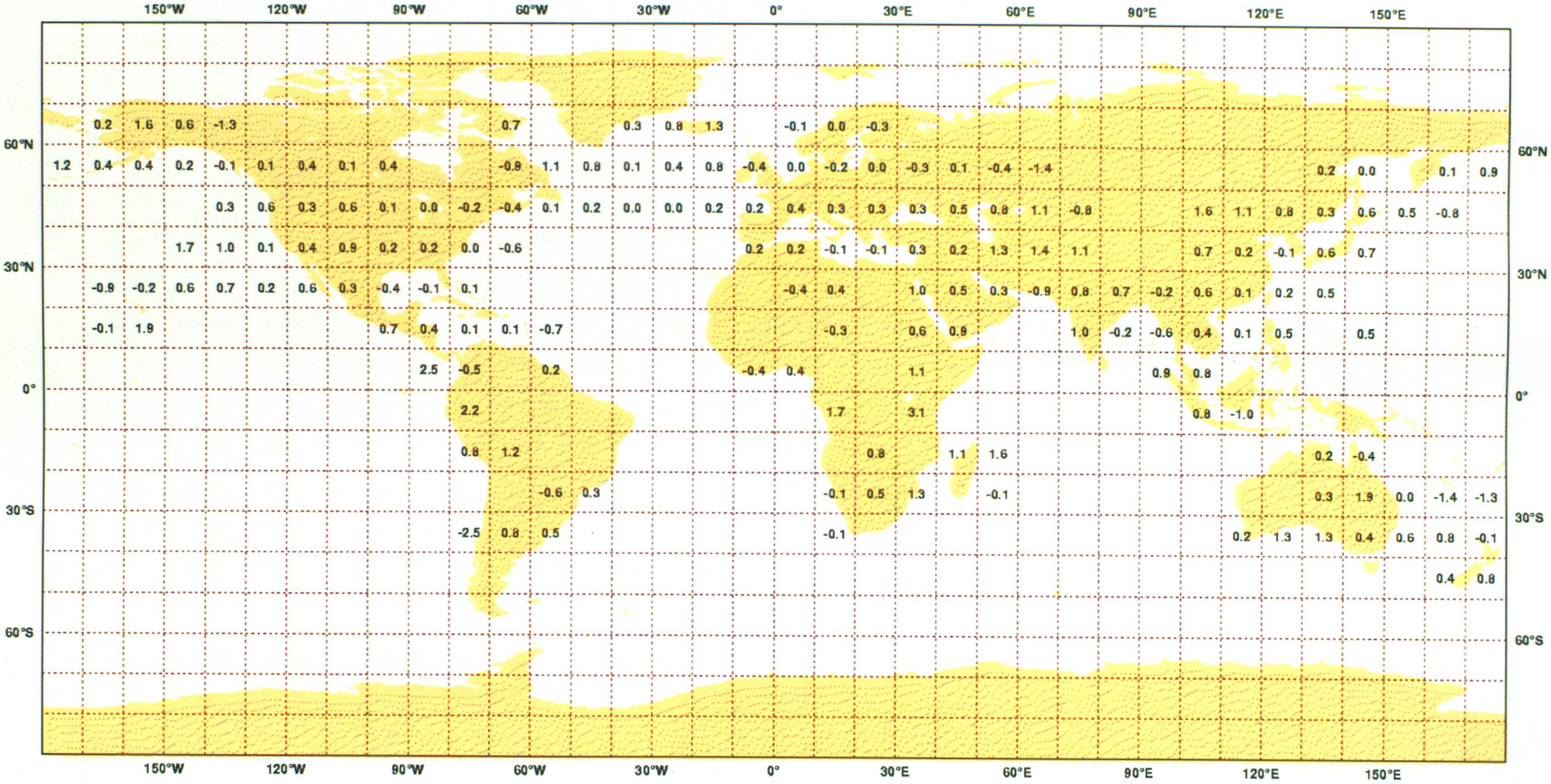

150°W 120°W 90°W 60°W 30°W 0° 30°E 60°E 90°E 120°E 150°E
60°N 30°N 0° 30°S 60°S
0.2 1.6 0.6 -1.3 0.7 0.3 0.8 1.3 -0.1 0.0 -0.3
1.2 0.4 0.4 0.2 -0.1 0.1 0.4 0.1 0.4 -0.9 1.1 0.8 0.1 0.4 0.8 -0.4 0.0 -0.2 0.0 -0.3 0.1 -0.4 -1.4 0.2 0.0 0.1 0.9
0.3 0.6 0.3 0.6 0.1 0.0 -0.2 -0.4 0.1 0.2 0.0 0.0 0.2 0.2 0.4 0.3 0.3 0.3 0.5 0.8 1.1 -0.8 1.6 1.1 0.8 0.3 0.6 0.5 -0.8
1.7 1.0 0.1 0.4 0.9 0.2 0.2 0.0 -0.6 0.2 0.2 -0.1 -0.1 0.3 0.2 1.3 1.4 1.1 0.7 0.2 -0.1 0.6 0.7
-0.9 -0.2 0.6 0.7 0.2 0.6 0.3 -0.4 -0.1 0.1 -0.4 0.4 1.0 0.5 0.3 -0.9 0.8 0.7 -0.2 0.6 0.1 0.2 0.5
-0.1 1.9 0.7 0.4 0.1 0.1 -0.7 -0.3 0.6 0.9 1.0 -0.2 -0.6 0.4 0.1 0.5 0.5
2.5 -0.5 0.2 -0.4 0.4 1.1 0.9 0.8
2.2 1.7 3.1 0.8 -1.0
0.8 1.2 0.8 1.1 1.6 0.2 -0.4
-0.6 0.3 -0.1 0.5 1.3 -0.1 0.3 1.9 0.0 -1.4 -1.3
-2.5 0.8 0.5 -0.1 0.2 1.3 1.3 0.4 0.6 0.8 -0.1
0.4 0.8

Figure 7a. AIRCRAFT 300 - 150 hPa RMS O-B vector (ms-1). APRIL 2005
Observations with O-B vector difference greater than 60 ms-1 excluded
Values are printed where greater than 30 obs are present

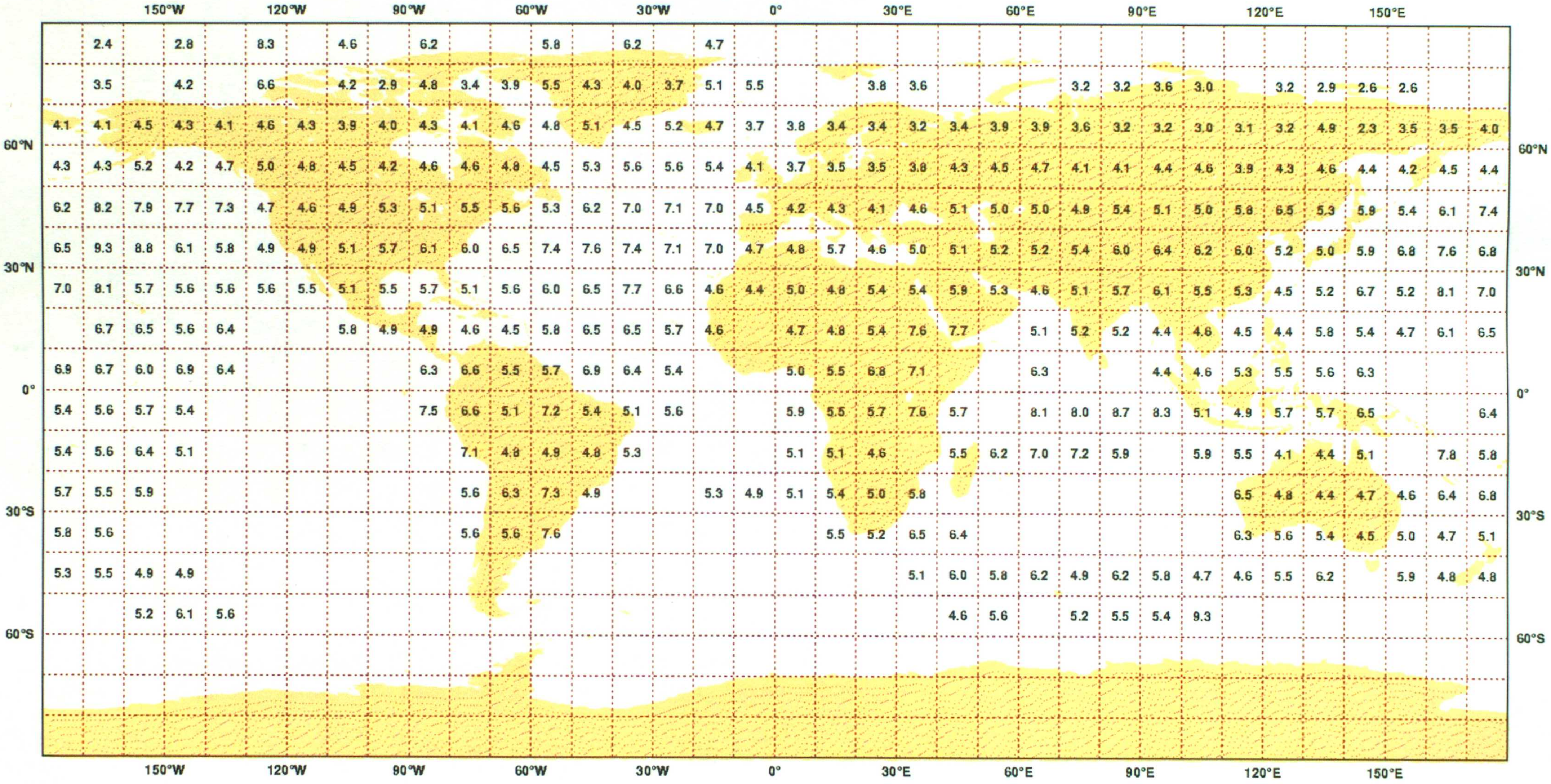

150°W 120°W 90°W 60°W 30°W 0° 30°E 60°E 90°E 120°E 150°E
60°N 30°N 0° 30°S 60°S
2.4 2.8 8.3 4.6 6.2 5.8 6.2 4.7
3.5 4.2 6.6 4.2 2.9 4.8 3.4 3.9 5.5 4.3 4.0 3.7 5.1 5.5 3.8 3.6 3.2 3.2 3.6 3.0 3.2 2.9 2.6 2.6
4.1 4.1 4.5 4.3 4.1 4.6 4.3 3.9 4.0 4.3 4.1 4.6 4.8 5.1 4.5 5.2 4.7 3.7 3.8 3.4 3.4 3.2 3.4 3.9 3.9 3.6 3.2 3.2 3.0 3.1 3.2 4.9 2.3 3.5 3.5 4.0
4.3 4.3 5.2 4.2 4.7 5.0 4.8 4.5 4.2 4.6 4.6 4.8 4.5 5.3 5.6 5.6 5.4 4.1 3.7 3.5 3.5 3.8 4.3 4.5 4.7 4.1 4.1 4.4 4.6 3.9 4.3 4.6 4.4 4.2 4.5 4.4
6.2 8.2 7.9 7.7 7.3 4.7 4.6 4.9 5.3 5.1 5.5 5.6 5.3 6.2 7.0 7.1 7.0 4.5 4.2 4.3 4.1 4.6 5.1 5.0 5.0 4.9 5.4 5.1 5.0 5.8 6.5 5.3 5.9 5.4 6.1 7.4
6.5 9.3 8.8 6.1 5.8 4.9 4.9 5.1 5.7 6.1 6.0 6.5 7.4 7.6 7.4 7.1 7.0 4.7 4.8 5.7 4.6 5.0 5.1 5.2 5.2 5.4 6.0 6.4 6.2 6.0 5.2 5.0 5.9 6.8 7.6 6.8
7.0 8.1 5.7 5.6 5.6 5.6 5.5 5.1 5.5 5.7 5.1 5.6 6.0 6.5 7.7 6.6 4.6 4.4 5.0 4.8 5.4 5.4 5.9 5.3 4.6 5.1 5.7 6.1 5.5 5.3 4.5 5.2 6.7 5.2 8.1 7.0
6.7 6.5 5.6 6.4 5.8 4.9 4.9 4.6 4.5 5.8 6.5 6.5 5.7 4.6 4.7 4.8 5.4 7.6 7.7 5.1 5.2 5.2 4.4 4.6 4.5 4.4 5.8 5.4 4.7 6.1 6.5
6.9 6.7 6.0 6.9 6.4 6.3 6.6 5.5 5.7 6.9 6.4 5.4 5.0 5.5 6.8 7.1 6.3 4.4 4.6 5.3 5.5 5.6 6.3
5.4 5.6 5.7 5.4 7.5 6.6 5.1 7.2 5.4 5.1 5.6 5.9 5.5 5.7 7.6 5.7 8.1 8.0 8.7 8.3 5.1 4.9 5.7 5.7 6.5 6.4
5.4 5.6 6.4 5.1 7.1 4.8 4.9 4.8 5.3 5.1 5.1 4.6 5.5 6.2 7.0 7.2 5.9 5.9 5.5 4.1 4.4 5.1 7.8 5.8
5.7 5.5 5.9 5.6 6.3 7.3 4.9 5.3 4.9 5.1 5.4 5.0 5.8 6.5 4.8 4.4 4.7 4.6 6.4 6.8
5.8 5.6 5.6 5.6 7.6 5.5 5.2 6.5 6.4 6.3 5.6 5.4 4.5 5.0 4.7 5.1
5.3 5.5 4.9 4.9 5.1 6.0 5.8 6.2 4.9 6.2 5.8 4.7 4.6 5.5 6.2 5.9 4.8 4.8
5.2 6.1 5.6 4.6 5.6 5.2 5.5 5.4 9.3

Figure 7b. AIRCRAFT 1000 - 301 hPa RMS O-B vector (ms-1). APRIL 2005
Observations with O-B vector difference greater than 60 ms-1 excluded
Values are printed where greater than 30 obs are present

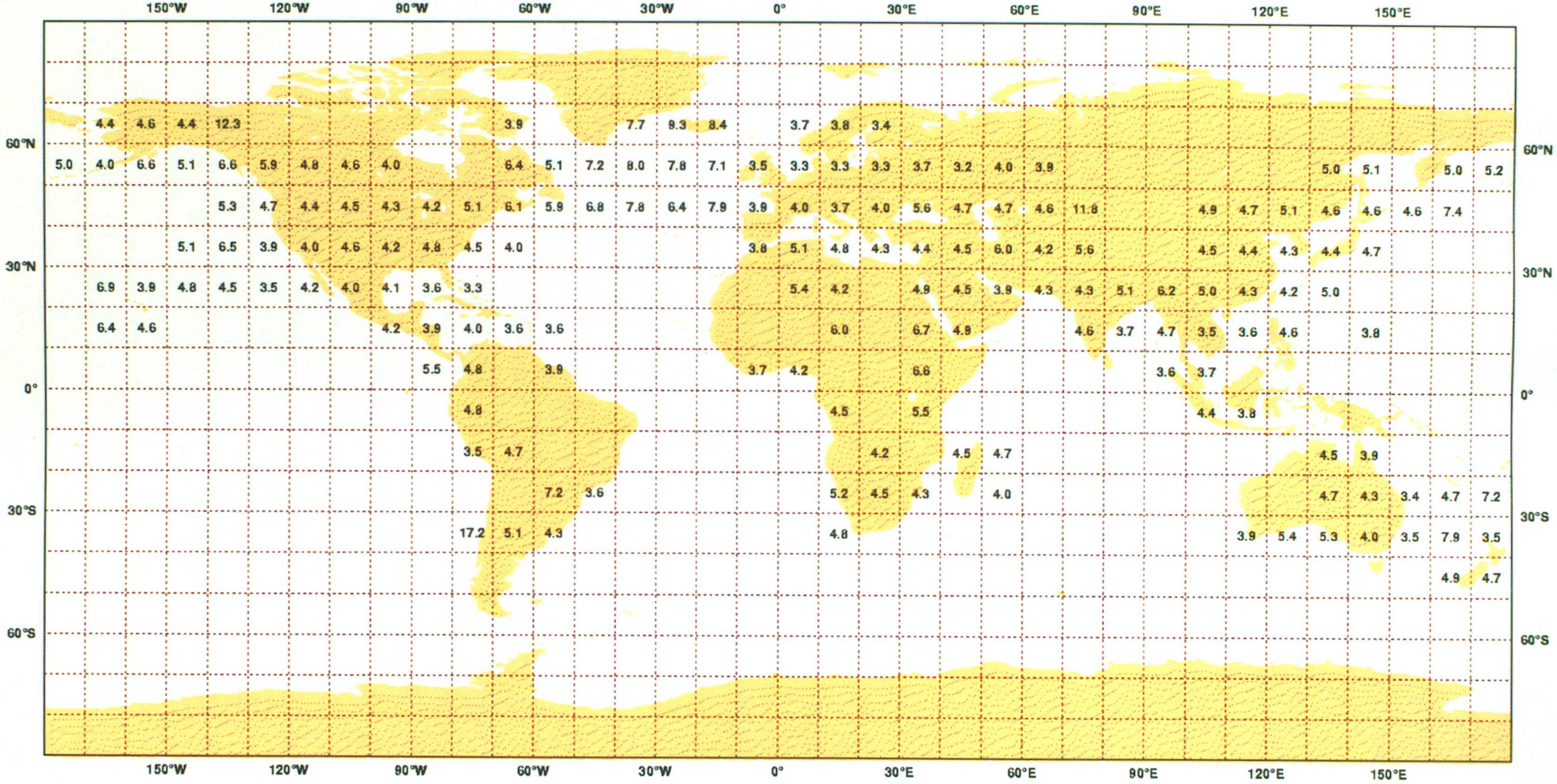

150°W
120°W
90°W
60°W
30°W
0°
30°E
60°E
90°E
120°E
150°E
60°N
30°N
0°
30°S
60°S
4.4 4.6 4.4 12.3 3.9 7.7 9.3 8.4 3.7 3.8 3.4
5.0 4.0 6.6 5.1 6.6 5.9 4.8 4.6 4.0 6.4 5.1 7.2 8.0 7.8 7.1 3.5 3.3 3.3 3.3 3.7 3.2 4.0 3.9 5.0 5.1 5.0 5.2
5.3 4.7 4.4 4.5 4.3 4.2 5.1 6.1 5.9 6.8 7.8 6.4 7.9 3.9 4.0 3.7 4.0 5.6 4.7 4.7 4.6 11.8 4.9 4.7 5.1 4.6 4.6 4.6 7.4
5.1 6.5 3.9 4.0 4.6 4.2 4.8 4.5 4.0 3.8 5.1 4.8 4.3 4.4 4.5 6.0 4.2 5.6 4.5 4.4 4.3 4.4 4.7
6.9 3.9 4.8 4.5 3.5 4.2 4.0 4.1 3.6 3.3 5.4 4.2 4.9 4.5 3.9 4.3 4.3 5.1 6.2 5.0 4.3 4.2 5.0
6.4 4.6 4.2 3.9 4.0 3.6 3.6 6.0 6.7 4.9 4.6 3.7 4.7 3.5 3.6 4.6 3.8
5.5 4.8 3.9 3.7 4.2 6.6 3.6 3.7
4.8 4.5 5.5 4.4 3.8
3.5 4.7 4.2 4.5 4.7 4.5 3.9
7.2 3.6 5.2 4.5 4.3 4.0 4.7 4.3 3.4 4.7 7.2
17.2 5.1 4.3 4.8 3.9 5.4 5.3 4.0 3.5 7.9 3.5
4.9 4.7

TABLE 5

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS
MONITORING CENTRE: EXETER
MONTH: Apr 2005

Monitoring procedures

Period		:One calendar month.
Data monitored		:Reports from each unique identifier for radiosonde TEMPs.
Area monitored		:90°N - 90°S, 180°W - 180°E.
Standard of comparison		:Background field from UKMO global model.
Observation times		:00 UTC and 12 UTC.
Level(s) monitored		:Standard levels between 1000.0 - 30.0 hPa
Element monitored		:GEOPOTENTIAL HEIGHT IN metres
Parameters monitored	:NUM OBS	:Number of observations available at level shown during period.
	:NUM GROSS	:Number of gross errors at level shown during period.
	:% REJ	:Percentage of observations rejected by quality control at level shown during period excluding those with gross errors.
	:SD	:SD of difference of observations from background values at level shown excluding those with gross errors.
	:BIAS	:Mean difference of observations from background values at level shown excluding those with gross errors.
	:RMS	:Root Mean Square difference of observations from background values at level shown excluding those with gross errors.
	:NUM LEVELS	:Number of levels satisfying selection criteria.
GROSS ERROR LIMITS	:Defined in Appendix I.1	
SELECTION CRITERIA	: ≥3 levels with ≥10 observations and ≥ 100 m weighted RMS.	

ONLY THE WORST LEVEL IS SHOWN WITH UNWEIGHTED RMS

WMO IDENT	OBS TIME	ELM	LEV	LAT/LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS	NUM LEVELS
23804	00	Z	1000	62/ 51	16	8	28.8	-32.0	43.0	4
25428	00	Z	200	65/ 161	18	0	87.3	-30.4	92.4	9
28275	12	Z	200	58/ 68	24	0	37.2	88.3	95.8	8
31168	00	Z	50	56/ 138	15	2	71.4	270.1	279.4	8
34560	12	Z	100	49/ 44	28	1	33.0	105.0	110.1	6
42101	00	Z	150	30/ 76	22	1	65.4	-92.3	113.1	5
42101	12	Z	100	30/ 76	9	1	115.0	6.3	115.2	4
42182	00	Z	100	29/ 77	21	1	83.8	-104.8	134.2	5
42182	12	Z	50	29/ 77	10	2	105.2	182.4	210.6	4
42314	00	Z	200	27/ 95	17	0	47.4	-102.0	112.5	5
42339	00	Z	200	26/ 73	18	2	88.7	-113.2	143.8	8
42361	00	Z	1000	26/ 78	1	16	0.0	-95.0	95.0	8
42369	00	Z	250	27/ 81	10	1	111.2	-109.6	156.1	9
42369	12	Z	1000	27/ 81	8	5	14.3	-78.8	80.0	6
42379	00	Z	200	27/ 83	24	1	60.3	-119.5	133.9	7
42410	00	Z	1000	26/ 92	1	11	0.0	-82.0	82.0	5
42492	12	Z	100	26/ 85	21	0	94.9	-102.6	139.8	5
42667	00	Z	200	23/ 77	15	0	73.2	-103.9	127.1	5
42701	00	Z	50	23/ 85	12	1	107.0	154.7	188.1	7
42724	00	Z	200	24/ 91	10	0	119.8	-91.0	150.5	8
42809	00	Z	30	23/ 88	13	3	95.6	278.6	294.6	10
42809	12	Z	200	23/ 88	24	1	72.6	-119.0	139.4	9
42867	00	Z	150	21/ 79	22	0	126.7	-46.0	134.8	8
42867	12	Z	500	21/ 79	11	0	34.1	-43.4	55.2	4
42971	00	Z	50	20/ 86	11	0	132.0	116.3	175.9	4
42971	12	Z	200	20/ 86	18	0	88.3	-81.9	120.5	8
43003	00	Z	1000	19/ 73	29	0	14.1	-68.7	70.2	11
43003	12	Z	1000	19/ 73	29	1	14.6	-79.0	80.4	9
43128	00	Z	150	17/ 78	20	0	104.6	-116.8	156.8	6
43150	00	Z	1000	18/ 83	12	16	11.0	-87.1	87.8	8
43185	00	Z	100	16/ 81	10	0	134.5	-93.1	163.6	5
43185	12	Z	1000	16/ 81	11	0	37.8	33.5	50.5	5
43192	00	Z	200	15/ 74	10	0	91.4	-119.0	150.0	4
43279	00	Z	50	13/ 80	6	1	57.5	195.3	203.6	8
43279	12	Z	300	13/ 80	17	0	69.6	-30.6	76.1	5
43333	00	Z	150	12/ 93	27	0	62.4	-123.7	138.5	5
43333	12	Z	100	12/ 93	19	3	83.0	-163.1	182.9	6
43353	00	Z	1000	10/ 76	22	4	11.2	-78.2	79.0	7
43353	12	Z	1000	10/ 76	11	5	11.6	-82.9	83.7	5
43369	00	Z	150	8/ 73	14	2	99.3	-86.1	131.4	6
43371	00	Z	150	8/ 77	13	4	60.3	-176.1	186.1	9
43371	12	Z	150	8/ 77	23	0	103.1	-77.0	128.7	8
43466	12	Z	250	7/ 80	2	0	157.0	27.0	159.3	4
91366	12	Z	150	9/ 168	25	4	108.3	-145.4	181.3	7

Figure 8. TEMP 500 hPa geopotential mean daily count. APRIL 2005
All hours
Global average number of observations in 24 hours = 1224

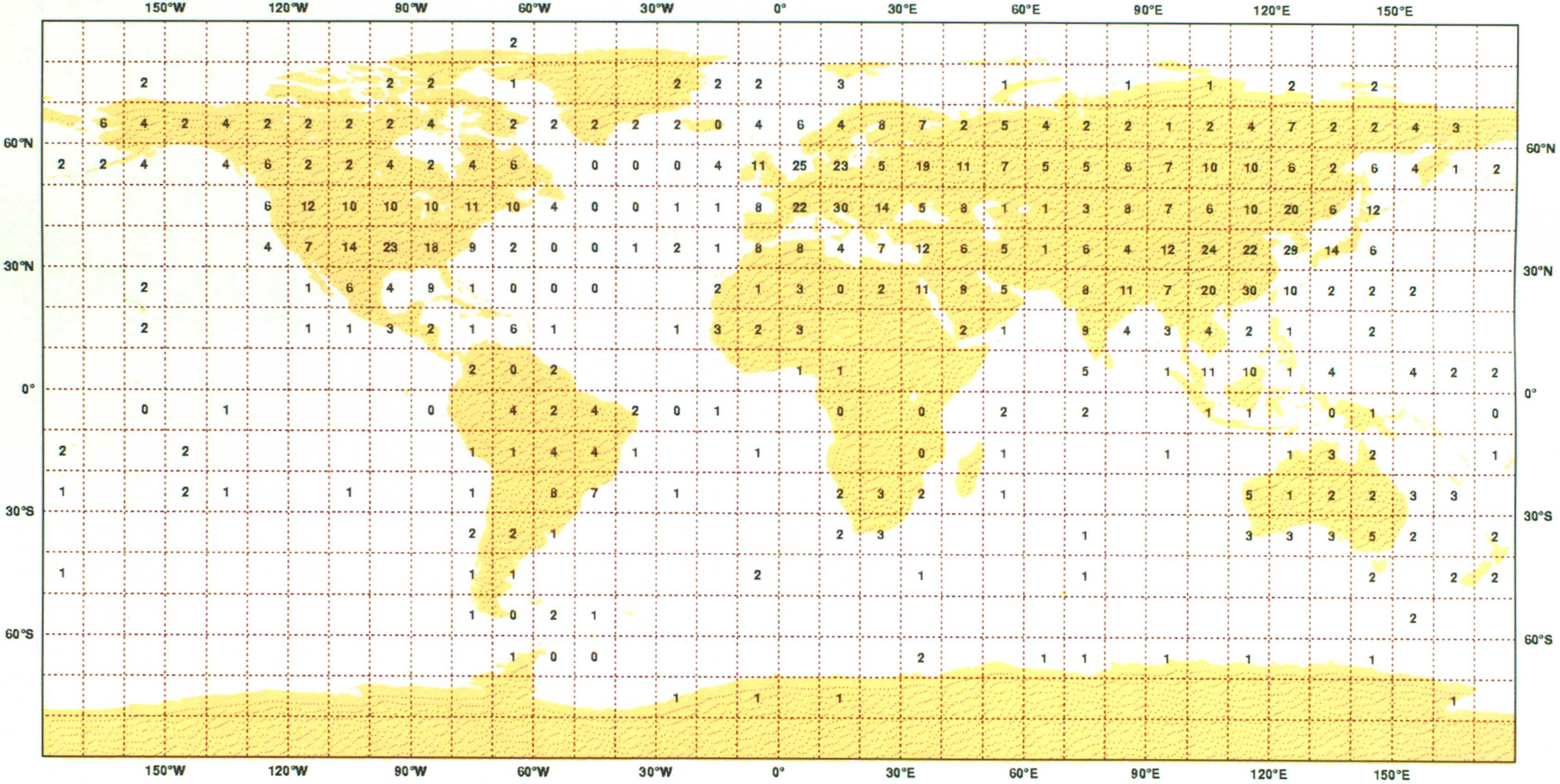

150°W 120°W 90°W 60°W 30°W 0° 30°E 60°E 90°E 120°E 150°E
60°N
30°N
0°
30°S
60°S
2
2 2 2 1 2 2 2 3 1 1 1 2 2
6 4 2 4 2 2 2 2 4 2 2 2 2 2 0 4 6 4 8 7 2 5 4 2 2 1 2 4 7 2 2 4 3
2 2 4 4 6 2 2 4 2 4 6 0 0 0 4 11 25 23 5 19 11 7 5 5 6 7 10 10 6 2 6 4 1 2
6 12 10 10 10 11 10 4 0 0 1 1 8 22 30 14 5 8 1 1 3 8 7 6 10 20 6 12
4 7 14 23 18 9 2 0 0 1 2 1 8 8 4 7 12 6 5 1 6 4 12 24 22 29 14 6
2 1 6 4 9 1 0 0 0 2 1 3 0 2 11 9 5 8 11 7 20 30 10 2 2 2
2 1 1 3 2 1 6 1 1 3 2 3 2 1 9 4 3 4 2 1 2
2 0 2 1 1 5 1 11 10 1 4 4 2 2
0 1 0 4 2 4 2 0 1 0 0 2 2 1 1 0 1 0
2 2 1 1 4 4 1 1 0 1 1 1 3 2 1
1 2 1 1 1 8 7 1 2 3 2 1 5 1 2 2 3 3
2 2 1 2 3 1 3 3 3 5 2 2
1 1 1 2 1 1 2 2 2
1 0 2 1 2
1 0 0 2 1 1 1 1 1
1 1 1 1

TABLE 6

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS
MONITORING CENTRE: EXETER
MONTH: Apr 2005

Monitoring procedures

Period :One calendar month.

Data monitored :Reports from each unique identifier for radiosonde TEMPs.

Area monitored :90°N - 90°S, 180°W - 180°E.

Standard of comparison :Background field from UKMO global model.

Observation times :00 UTC and 12 UTC.

Level(s) monitored :Standard levels between 1000.0 - 100.0 hPa

Element monitored :VECTOR WIND in m s^{-1}

Parameters monitored

:NUM OBS :Number of observations available at level shown during period.

:NUM GROSS :Number of gross errors at level shown during period.

:% REJ :Percentage of observations rejected by quality control at level shown during period excluding those with gross errors.

:UBIAS,VBIAS :Mean difference of observations of U and V components from background values at level shown excluding those with gross errors.

:RMS :Root Mean Square difference of observations from background values at level shown excluding those with gross errors.

:NUM LEVELS :Number of levels satisfying selection criteria.

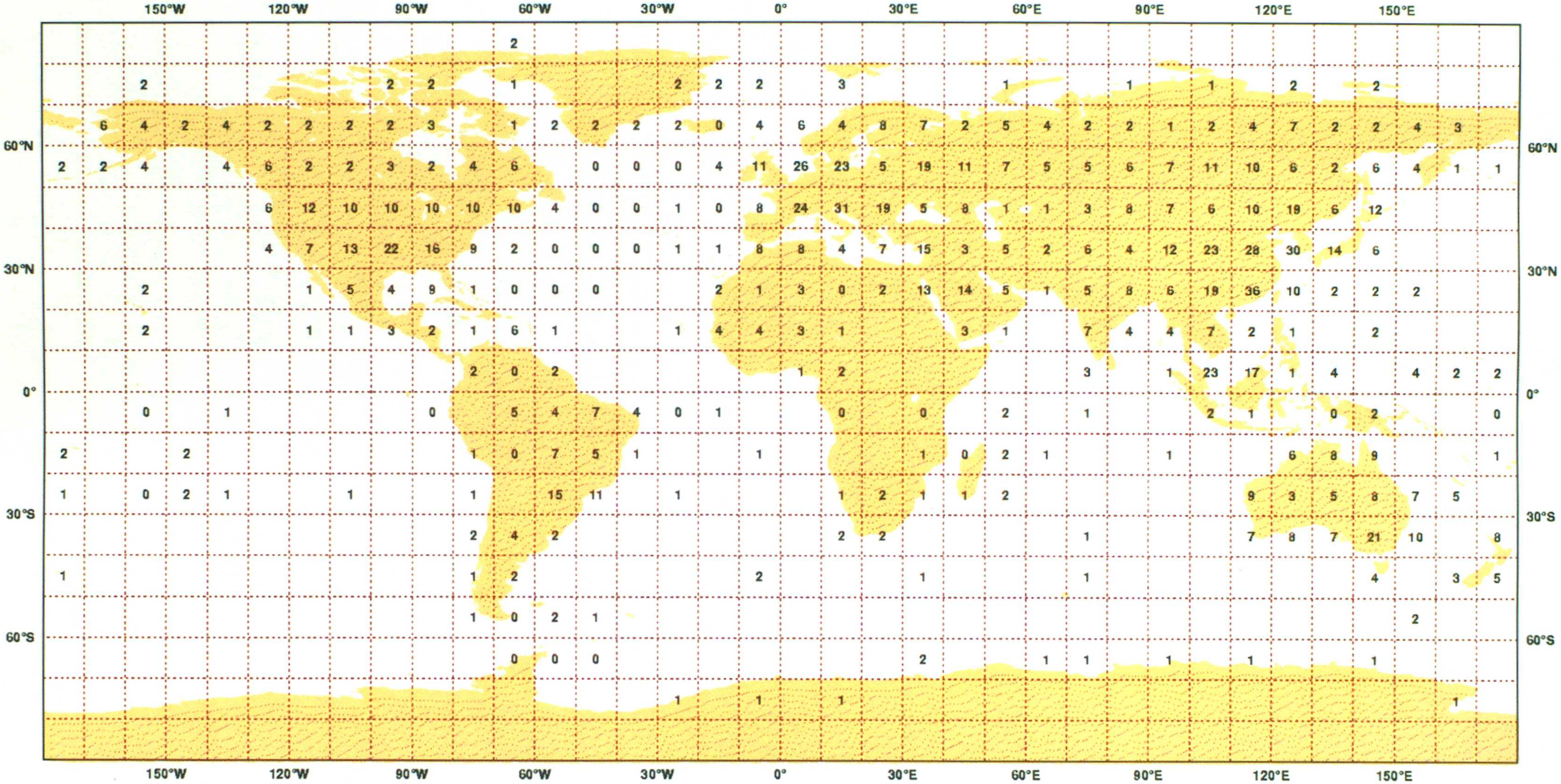
GROSS ERROR LIMITS :Defined in Appendix I.2

SELECTION CRITERIA : ≥ 10 observations and ≥ 15 m s^{-1} RMS vector wind.

ONLY THE STANDARD LEVEL BETWEEN 1000 - 100 hPa WITH HIGHEST RMS IS SHOWN

WMO IDENT	OBS TIME	ELM	LEV	LAT/LONG	NUM OBS	NUM GROSS	% REJ	UBIAS	VBIAS	RMS	LEVELS
40809	12	V	250	33/ 59	11	0	100	-7.9	-0.1	17.9	2
42101	12	V	150	30/ 76	11	0	100	4.2	-1.3	18.0	2
42182	00	V	100	29/ 77	23	0	100	-11.8	-1.6	16.8	2
42182	12	V	150	29/ 77	27	1	96	-6.6	-10.9	15.8	2
42701	00	V	200	23/ 85	24	0	100	-11.9	-3.2	16.0	2
43369	00	V	200	8/ 73	17	0	100	2.6	-4.6	16.2	1
47058	00	V	250	39/ 126	16	0	100	-11.9	-0.1	24.1	3
55591	00	V	200	30/ 91	30	0	100	-2.7	-2.4	21.8	6
56146	12	V	100	32/ 100	13	0	100	4.8	-2.5	17.1	1
58606	00	V	200	29/ 116	30	0	3	-2.2	1.0	17.0	3
58968	12	V	200	25/ 122	30	0	100	-7.5	-11.4	18.3	3
60559	12	V	500	33/ 7	11	0	100	-6.4	3.4	16.4	1
60571	12	V	150	31/ -2	26	0	3	-4.6	1.6	23.0	1
60590	12	V	300	31/ 3	13	0	100	-19.6	2.4	24.5	2
61641	00	V	150	15/ -17	26	0	7	-5.1	2.1	24.0	1
62306	00	V	300	31/ 27	26	0	100	0.6	-1.2	18.1	1
62337	00	V	200	31/ 34	30	0	100	-14.4	7.1	22.9	5
62337	12	V	200	31/ 34	28	0	100	-13.7	6.0	22.0	5
62423	00	V	150	27/ 28	24	0	100	-6.3	2.5	26.9	1
68442	12	V	250	-29/ 26	12	0	100	-8.0	4.3	27.2	2
68842	12	V	150	-34/ 26	17	0	100	-6.4	-1.6	20.4	3
71913	12	V	250	59/ -94	21	0	4	-0.5	-3.4	15.9	1
72355	12	V	500	35/ -98	15	1	20	-3.7	-5.0	15.6	2
72376	00	V	300	37/-108	30	0	100	-0.6	-0.9	15.7	2
89009	00	V	300	-90/ 0	26	0	42	-7.9	-19.9	26.5	7

Figure 9. TEMP/PILOT 300 hPa wind mean daily count. APRIL 2005
All hours
Global average number of observations in 24 hours = 1372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60°N 30°N 0° 30°S 60°S
2
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6 4 2 4 2 2 2 2 3 1 2 2 2 2 0 4 6 4 8 7 2 5 4 2 2 1 2 4 7 2 2 4 3
2 2 4 4 6 2 2 3 2 4 6 0 0 0 4 11 26 23 5 19 11 7 5 5 6 7 11 10 6 2 6 4 1 1
6 12 10 10 10 10 10 4 0 0 1 0 8 24 31 19 5 8 1 1 3 8 7 6 10 19 6 12
4 7 13 22 16 9 2 0 0 0 1 1 8 8 4 7 15 3 5 2 6 4 12 23 28 30 14 6
2 1 5 4 9 1 0 0 0 2 1 3 0 2 13 14 5 1 5 8 6 19 36 10 2 2 2
2 1 1 3 2 1 6 1 1 4 4 3 1 3 1 7 4 4 7 2 1 2
2 0 2 1 2 3 1 23 17 1 4 4 2 2
0 1 0 5 4 7 4 0 1 0 0 2 1 2 1 0 2 0
2 2 1 0 7 5 1 1 1 0 2 1 1 6 8 9 1
1 0 2 1 1 1 15 11 1 1 2 1 1 2 9 3 5 8 7 5
2 4 2 2 2 1 7 8 7 21 10 8
1 1 2 2 1 1 4 3 5
1 0 2 1 2
0 0 0 2 1 1 1 1 1
1 1 1 1
150°W 120°W 90°W 60°W 30°W 0° 30°E 60°E 90°E 120°E 150°E

TABLE 7

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS
MONITORING CENTRE: EXETER
MONTH: Apr 2005

Monitoring procedures

Period		:One calendar month.
Data monitored		:Reports from each unique identifier for radiosonde TEMPs.
Area monitored		:90°N - 90°S, 180°W - 180°E.
Standard of comparison		:Background field from UKMO global model.
Observation times		:00 UTC and 12 UTC.
Level(s) monitored		:Standard levels between 500.0 - 150.0 hPa
Element monitored		:WIND DIRECTION in degrees
Parameters monitored		
	:NUM OBS	:Average number of observations at all levels.
	:BIAS	:Mean difference of observations from background values from all levels.
	:MAX SPREAD	:(For observation - background values) Maximum absolute difference of SD at any level from SD at all levels
	:SD	:SD of difference of observations from background values at all levels.

SELECTION CRITERIA :NUM OBS ≥ 5, and
ABSOLUTE BIAS ≥ 10°, with
SD < 30°, and
MAX SPREAD < 10°

WMO IDENT	OBS TIME	ELM	LAT/LONG	NUM OBS	BIAS	MAX SPREAD	SD
ELML7	12	DD	21/ -70	5	22.0	9.7	18.2
26477	12	DD	56/ 31	23	-14.8	3.0	19.7
33791	12	DD	48/ 33	22	-15.7	3.0	12.4
42182	00	DD	29/ 77	23	14.4	6.8	13.7
42182	12	DD	29/ 77	29	18.5	2.7	11.1
43333	00	DD	12/ 93	19	13.2	7.7	19.2
43333	12	DD	12/ 93	17	11.5	9.8	23.0
58968	00	DD	25/ 122	29	19.0	4.2	5.6
58968	12	DD	25/ 122	30	15.1	1.0	21.9
62337	00	DD	31/ 34	29	-21.2	6.4	8.7
62337	12	DD	31/ 34	28	-20.6	3.7	10.8
71913	12	DD	59/ -94	21	11.3	7.9	27.1

MONITORING OF SATELLITE WINDS

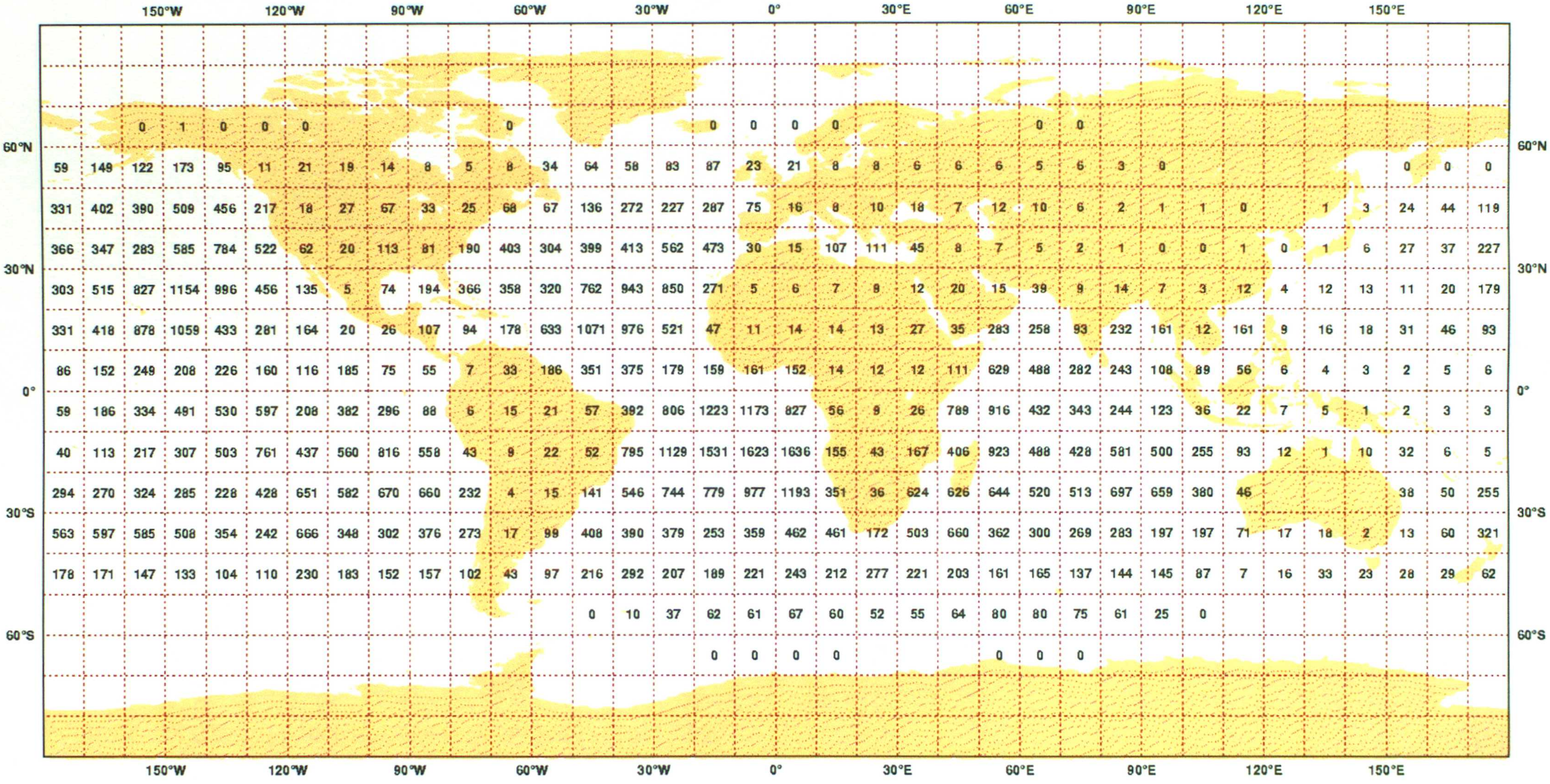
MONITORING CENTRE: EXETER

MONTH: Apr 2005

Monitoring procedures

Period	:One calendar month.
Data monitored	:Reports from GOES-9, GOES-10, GOES-12, METEOSAT-5, METEOSAT-7
Standard of comparison	:Background field from UKMO global model.
Selection Criteria	:number of observations > 10.
Data Extracted	:Layer 701 - 1000 hPa 401 - 700 hPa 101 - 400 hPa
	:Mean wind
	:Mean observation minus background vector wind differences
	:Mean observation minus background speed differences
	:RMS of observation minus background vector differences

Figure 10. SATOB 701 - 1000 hPa mean daily count. APRIL 2005
Global average number of observations in 24 hours = 91832



		0	1	0	0	0					0					0	0	0	0						0	0									
59	149	122	173	95	11	21	19	14	8	5	8	34	64	58	83	87	23	21	8	8	6	6	6	5	6	3	0						0	0	0
331	402	390	509	456	217	18	27	67	33	25	68	67	136	272	227	287	75	16	8	10	18	7	12	10	6	2	1	1	0		1	3	24	44	119
366	347	283	585	784	522	62	20	113	81	190	403	304	399	413	562	473	30	15	107	111	45	8	7	5	2	1	0	0	1	0	1	6	27	37	227
303	515	827	1154	996	456	135	5	74	194	366	358	320	762	943	850	271	5	6	7	8	12	20	15	39	9	14	7	3	12	4	12	13	11	20	179
331	418	878	1059	433	281	164	20	26	107	94	178	633	1071	976	521	47	11	14	14	13	27	35	283	258	93	232	161	12	161	9	16	18	31	46	93
86	152	249	208	226	160	116	185	75	55	7	33	186	351	375	179	159	161	152	14	12	12	111	629	488	282	243	108	89	56	6	4	3	2	5	6
59	186	334	491	530	597	208	382	296	88	6	15	21	57	392	806	1223	1173	827	56	9	26	789	916	432	343	244	123	36	22	7	5	1	2	3	3
40	113	217	307	503	761	437	560	816	558	43	9	22	52	795	1129	1531	1623	1636	155	43	167	406	923	488	428	581	500	255	93	12	1	10	32	6	5
294	270	324	285	228	428	651	582	670	660	232	4	15	141	546	744	779	977	1193	351	36	624	626	644	520	513	697	659	380	46				38	50	255
563	597	585	508	354	242	666	348	302	376	273	17	99	408	390	379	253	359	462	461	172	503	660	362	300	269	283	197	197	71	17	18	2	13	60	321
178	171	147	133	104	110	230	183	152	157	102	43	97	216	292	207	189	221	243	212	277	221	203	161	165	137	144	145	87	7	16	33	23	28	29	62
													0	10	37	62	61	67	60	52	55	64	80	80	75	61	25	0							
																0	0	0	0				0	0	0										

Figure 11. SATOB 701 - 1000 hPa vector mean wind. APRIL 2005
All observations
Arrows are plotted where greater than 10 obs are present

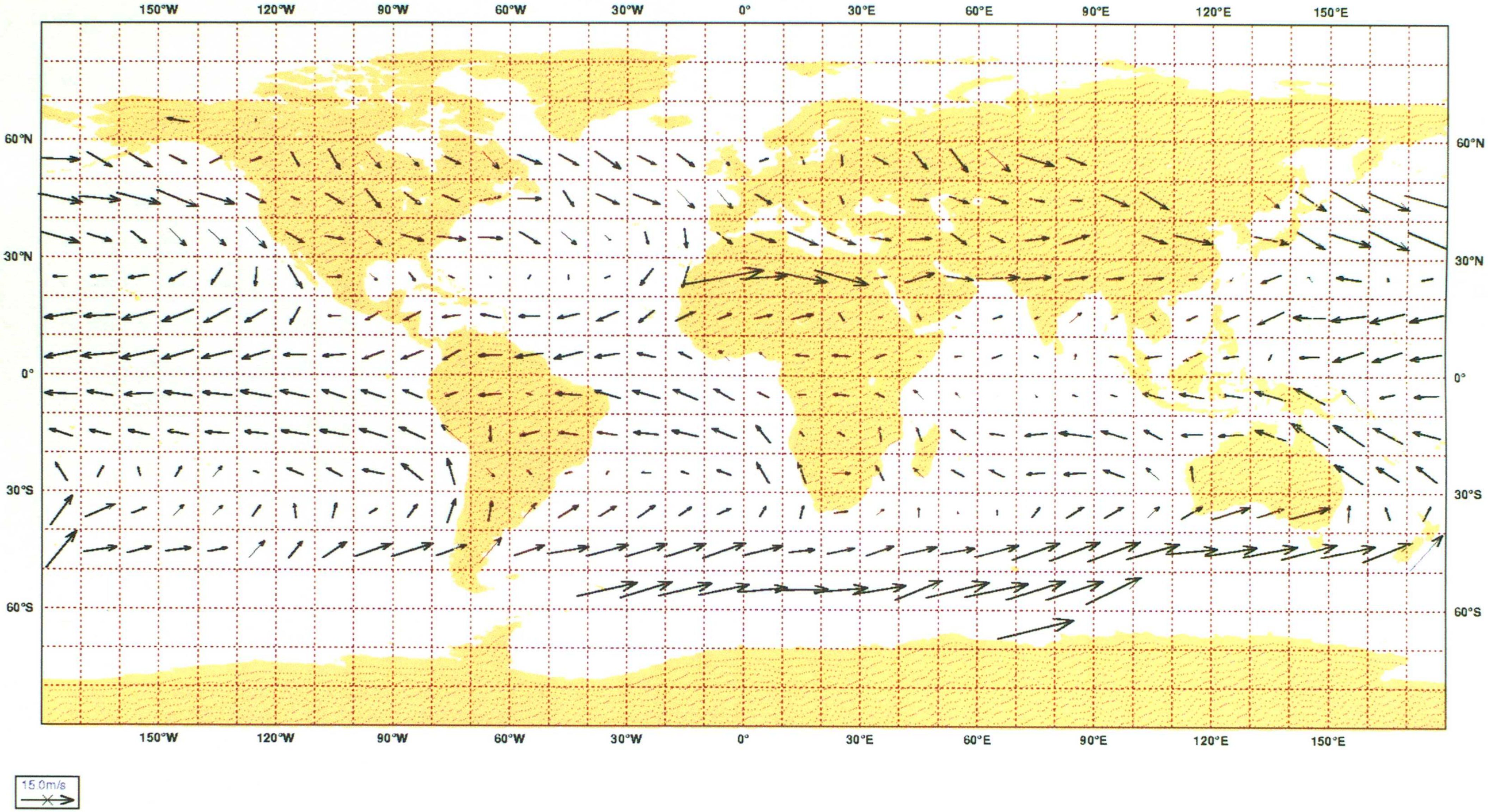
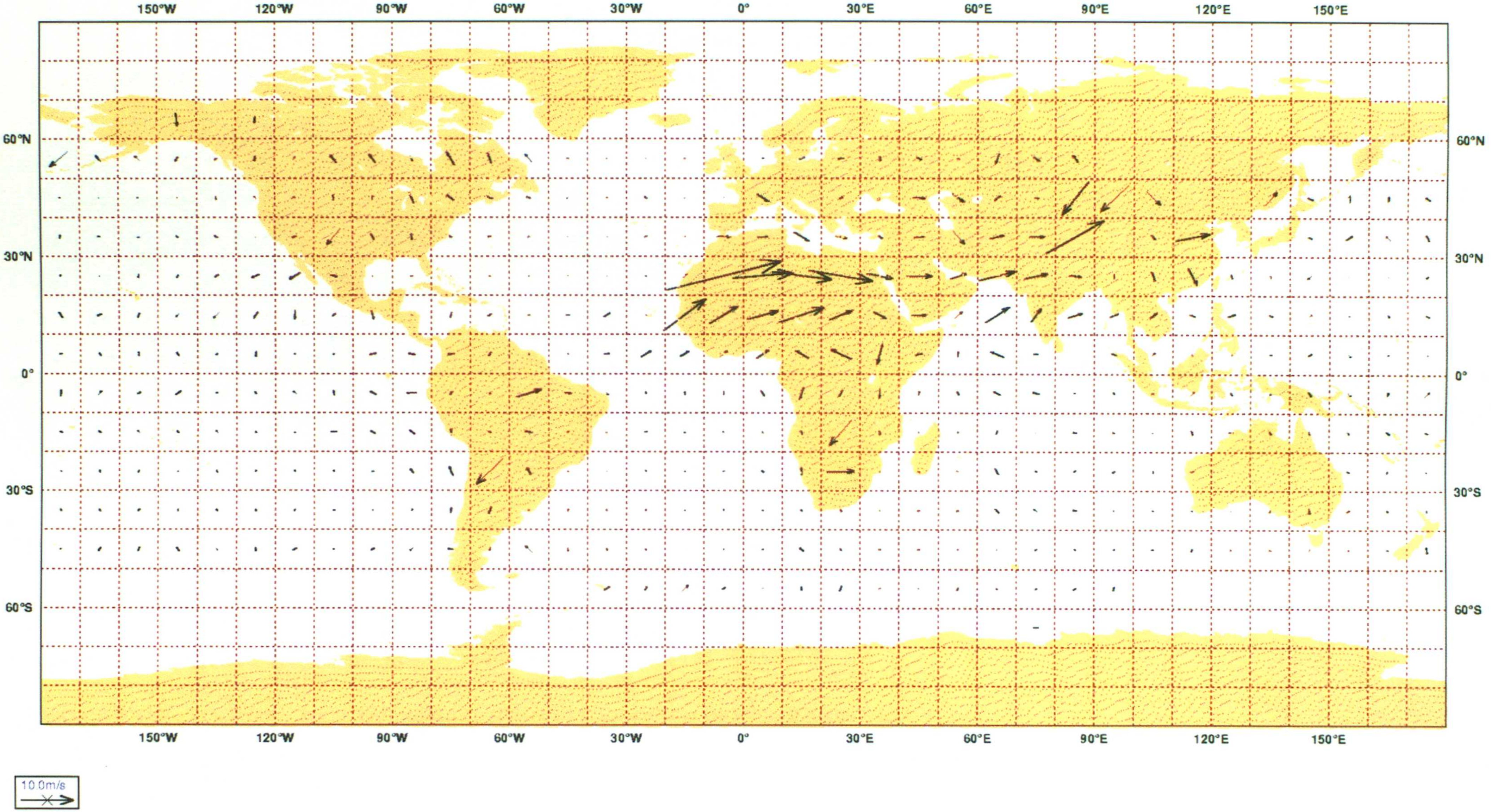
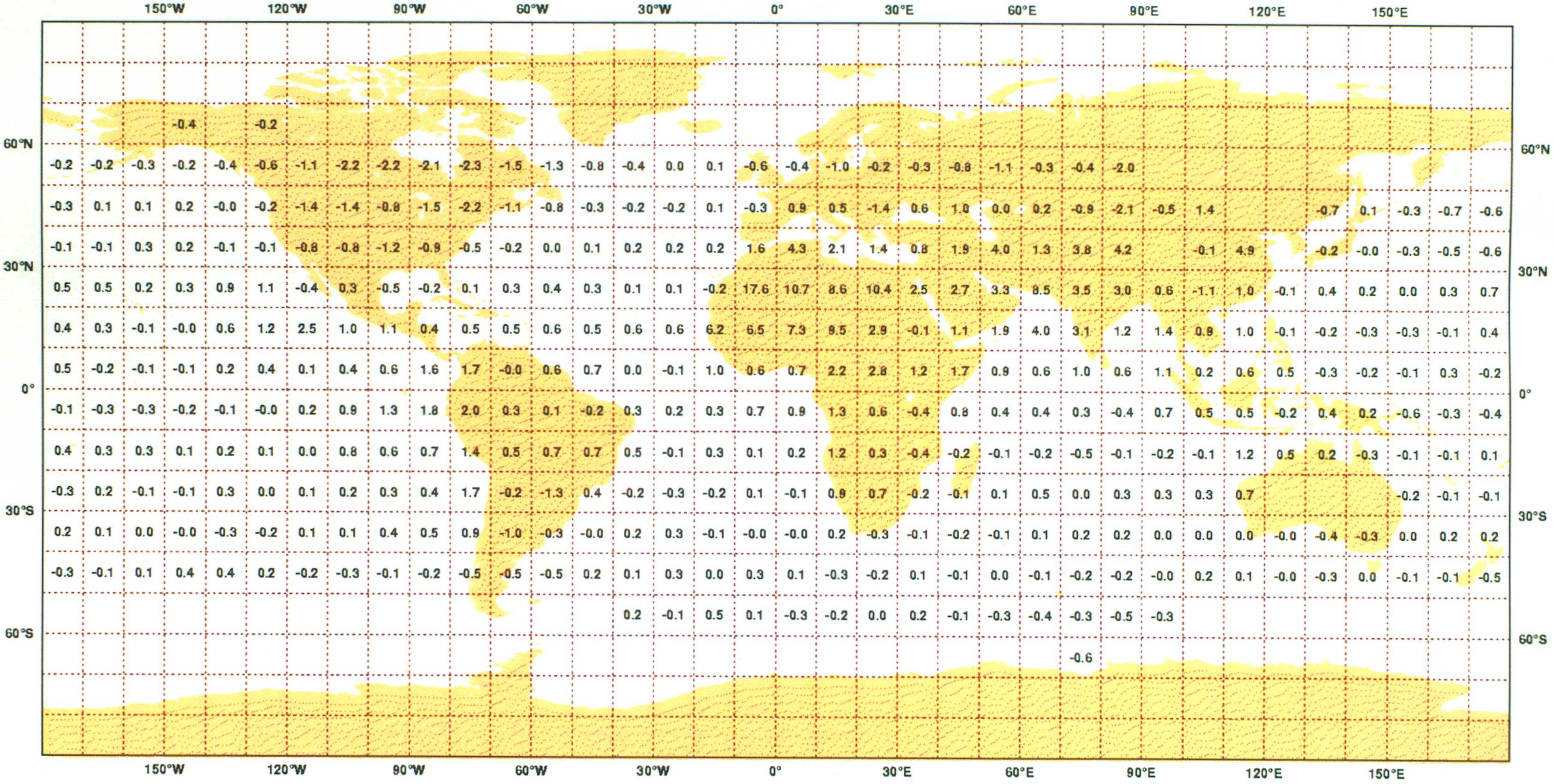

150°W
120°W
90°W
60°W
30°W
0°
30°E
60°E
90°E
120°E
150°E
60°N
30°N
0°
30°S
60°S
15.0m/s

Figure 12. SATOB 701 - 1000 hPa mean vector wind differences. APRIL 2005
All observations
Arrows are plotted where greater than 10 obs are present



150°W
120°W
90°W
60°W
30°W
0°
30°E
60°E
90°E
120°E
150°E
60°N
30°N
0°
30°S
60°S
10.0m/s

Figure 13. SATOB 701 - 1000 hPa mean O-B speed differences (ms-1). APRIL 2005
All observations
Values are plotted where greater than 10 obs are present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60°N 30°N 0° 30°S 60°S
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-0.2 -0.2 -0.3 -0.2 -0.4 -0.6 -1.1 -2.2 -2.2 -2.1 -2.3 -1.5 -1.3 -0.8 -0.4 0.0 0.1 -0.6 -0.4 -1.0 -0.2 -0.3 -0.8 -1.1 -0.3 -0.4 -2.0
-0.3 0.1 0.1 0.2 -0.0 -0.2 -1.4 -1.4 -0.8 -1.5 -2.2 -1.1 -0.8 -0.3 -0.2 -0.2 0.1 -0.3 0.9 0.5 -1.4 0.6 1.0 0.0 0.2 -0.9 -2.1 -0.5 1.4 -0.7 0.1 -0.3 -0.7 -0.6
-0.1 -0.1 0.3 0.2 -0.1 -0.1 -0.8 -0.8 -1.2 -0.9 -0.5 -0.2 0.0 0.1 0.2 0.2 0.2 1.6 4.3 2.1 1.4 0.8 1.9 4.0 1.3 3.8 4.2 -0.1 4.9 -0.2 -0.0 -0.3 -0.5 -0.6
0.5 0.5 0.2 0.3 0.9 1.1 -0.4 0.3 -0.5 -0.2 0.1 0.3 0.4 0.3 0.1 0.1 -0.2 17.6 10.7 8.6 10.4 2.5 2.7 3.3 8.5 3.5 3.0 0.6 -1.1 1.0 -0.1 0.4 0.2 0.0 0.3 0.7
0.4 0.3 -0.1 -0.0 0.6 1.2 2.5 1.0 1.1 0.4 0.5 0.5 0.6 0.5 0.6 0.6 6.2 6.5 7.3 9.5 2.9 -0.1 1.1 1.9 4.0 3.1 1.2 1.4 0.9 1.0 -0.1 -0.2 -0.3 -0.3 -0.1 0.4
0.5 -0.2 -0.1 -0.1 0.2 0.4 0.1 0.4 0.6 1.6 1.7 -0.0 0.6 0.7 0.0 -0.1 1.0 0.6 0.7 2.2 2.8 1.2 1.7 0.9 0.6 1.0 0.6 1.1 0.2 0.6 0.5 -0.3 -0.2 -0.1 0.3 -0.2
-0.1 -0.3 -0.3 -0.2 -0.1 -0.0 0.2 0.9 1.3 1.8 2.0 0.3 0.1 -0.2 0.3 0.2 0.3 0.7 0.9 1.3 0.6 -0.4 0.8 0.4 0.4 0.3 -0.4 0.7 0.5 0.5 -0.2 0.4 0.2 -0.6 -0.3 -0.4
0.4 0.3 0.3 0.1 0.2 0.1 0.0 0.8 0.6 0.7 1.4 0.5 0.7 0.7 0.5 -0.1 0.3 0.1 0.2 1.2 0.3 -0.4 -0.2 -0.1 -0.2 -0.5 -0.1 -0.2 -0.1 1.2 0.5 0.2 -0.3 -0.1 -0.1 0.1
-0.3 0.2 -0.1 -0.1 0.3 0.0 0.1 0.2 0.3 0.4 1.7 -0.2 -1.3 0.4 -0.2 -0.3 -0.2 0.1 -0.1 0.8 0.7 -0.2 -0.1 0.1 0.5 0.0 0.3 0.3 0.3 0.7 -0.2 -0.1 -0.1
0.2 0.1 0.0 -0.0 -0.3 -0.2 0.1 0.1 0.4 0.5 0.9 -1.0 -0.3 -0.0 0.2 0.3 -0.1 -0.0 -0.0 0.2 -0.3 -0.1 -0.2 -0.1 0.1 0.2 0.2 0.0 0.0 0.0 -0.0 -0.4 -0.3 0.0 0.2 0.2
-0.3 -0.1 0.1 0.4 0.4 0.2 -0.2 -0.3 -0.1 -0.2 -0.5 -0.5 -0.5 0.2 0.1 0.3 0.0 0.3 0.1 -0.3 -0.2 0.1 -0.1 0.0 -0.1 -0.2 -0.2 -0.0 0.2 0.1 -0.0 -0.3 0.0 -0.1 -0.1 -0.5
0.2 -0.1 0.5 0.1 -0.3 -0.2 0.0 0.2 -0.1 -0.3 -0.4 -0.3 -0.5 -0.3
-0.6

Figure 14. SATOB 701 - 1000 hPa mean RMS O-B vector differences (ms-1). APRIL 2005
All observations
Values are plotted where greater than 10 obs are present

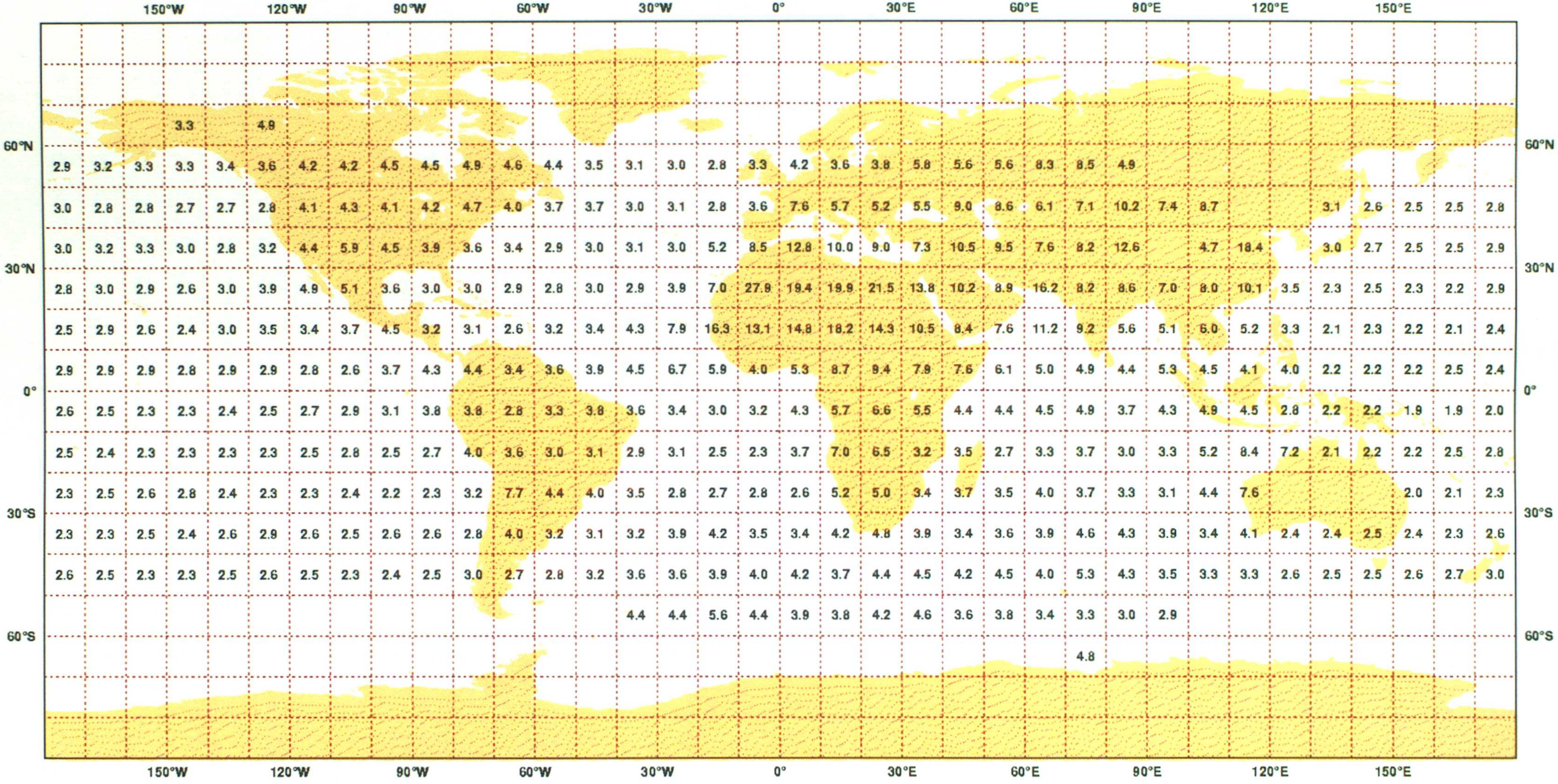
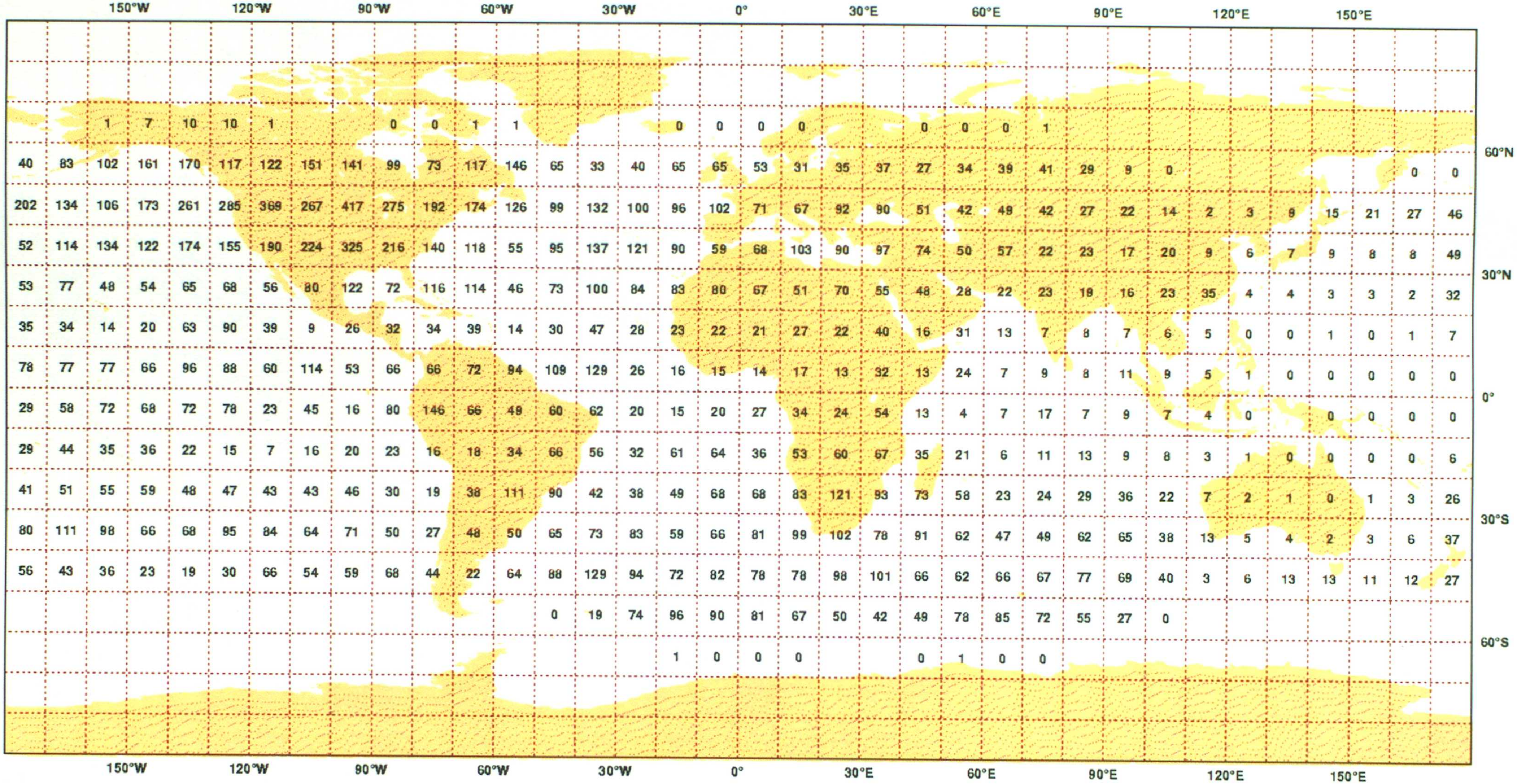

150°W 120°W 90°W 60°W 30°W 0° 30°E 60°E 90°E 120°E 150°E
60°N
30°N
0°
30°S
60°S
3.3 4.9
2.9 3.2 3.3 3.3 3.4 3.6 4.2 4.2 4.5 4.5 4.9 4.6 4.4 3.5 3.1 3.0 2.8 3.3 4.2 3.6 3.8 5.8 5.6 5.6 8.3 8.5 4.9
3.0 2.8 2.8 2.7 2.7 2.8 4.1 4.3 4.1 4.2 4.7 4.0 3.7 3.7 3.0 3.1 2.8 3.6 7.6 5.7 5.2 5.5 9.0 8.6 6.1 7.1 10.2 7.4 8.7 3.1 2.6 2.5 2.5 2.8
3.0 3.2 3.3 3.0 2.8 3.2 4.4 5.9 4.5 3.9 3.6 3.4 2.9 3.0 3.1 3.0 5.2 8.5 12.8 10.0 9.0 7.3 10.5 9.5 7.6 8.2 12.6 4.7 18.4 3.0 2.7 2.5 2.5 2.9
2.8 3.0 2.9 2.6 3.0 3.9 4.9 5.1 3.6 3.0 3.0 2.9 2.8 3.0 2.9 3.9 7.0 27.9 19.4 19.9 21.5 13.8 10.2 8.9 16.2 8.2 8.6 7.0 8.0 10.1 3.5 2.3 2.5 2.3 2.2 2.9
2.5 2.9 2.6 2.4 3.0 3.5 3.4 3.7 4.5 3.2 3.1 2.6 3.2 3.4 4.3 7.9 16.3 13.1 14.8 18.2 14.3 10.5 8.4 7.6 11.2 9.2 5.6 5.1 6.0 5.2 3.3 2.1 2.3 2.2 2.1 2.4
2.9 2.9 2.9 2.8 2.9 2.9 2.8 2.6 3.7 4.3 4.4 3.4 3.6 3.9 4.5 6.7 5.9 4.0 5.3 8.7 9.4 7.9 7.6 6.1 5.0 4.9 4.4 5.3 4.5 4.1 4.0 2.2 2.2 2.2 2.5 2.4
2.6 2.5 2.3 2.3 2.4 2.5 2.7 2.9 3.1 3.8 3.8 2.8 3.3 3.8 3.6 3.4 3.0 3.2 4.3 5.7 6.6 5.5 4.4 4.4 4.5 4.9 3.7 4.3 4.9 4.5 2.8 2.2 2.2 1.9 1.9 2.0
2.5 2.4 2.3 2.3 2.3 2.3 2.5 2.8 2.5 2.7 4.0 3.6 3.0 3.1 2.9 3.1 2.5 2.3 3.7 7.0 6.5 3.2 3.5 2.7 3.3 3.7 3.0 3.3 5.2 8.4 7.2 2.1 2.2 2.2 2.5 2.8
2.3 2.5 2.6 2.8 2.4 2.3 2.3 2.4 2.2 2.3 3.2 7.7 4.4 4.0 3.5 2.8 2.7 2.8 2.6 5.2 5.0 3.4 3.7 3.5 4.0 3.7 3.3 3.1 4.4 7.6 2.0 2.1 2.3
2.3 2.3 2.5 2.4 2.6 2.9 2.6 2.5 2.6 2.6 2.8 4.0 3.2 3.1 3.2 3.9 4.2 3.5 3.4 4.2 4.8 3.9 3.4 3.6 3.9 4.6 4.3 3.9 3.4 4.1 2.4 2.4 2.5 2.4 2.3 2.6
2.6 2.5 2.3 2.3 2.5 2.6 2.5 2.3 2.4 2.5 3.0 2.7 2.8 3.2 3.6 3.6 3.9 4.0 4.2 3.7 4.4 4.5 4.2 4.5 4.0 5.3 4.3 3.5 3.3 3.3 2.6 2.5 2.5 2.6 2.7 3.0
4.4 4.4 5.6 4.4 3.9 3.8 4.2 4.6 3.6 3.8 3.4 3.3 3.0 2.9
4.8

Figure 15. SATOB 401 - 700 hPa mean daily count. APRIL 2005
Global average number of observations in 24 hours = 22389



		1	7	10	10	1			0	0	1	1				0	0	0	0			0	0	0	1										
40	83	102	161	170	117	122	151	141	99	73	117	146	65	33	40	65	65	53	31	35	37	27	34	39	41	29	9	0						0	0
202	134	106	173	261	285	369	267	417	275	192	174	126	99	132	100	96	102	71	67	92	90	51	42	49	42	27	22	14	2	3	9	15	21	27	46
52	114	134	122	174	155	190	224	325	216	140	118	55	95	137	121	90	59	68	103	90	97	74	50	57	22	23	17	20	9	6	7	9	8	8	49
53	77	48	54	65	68	56	80	122	72	116	114	46	73	100	84	83	80	67	51	70	55	48	28	22	23	19	16	23	35	4	4	3	3	2	32
35	34	14	20	63	90	39	9	26	32	34	39	14	30	47	28	23	22	21	27	22	40	16	31	13	7	8	7	6	5	0	0	1	0	1	7
78	77	77	66	96	88	60	114	53	66	66	72	94	109	129	26	16	15	14	17	13	32	13	24	7	9	8	11	9	5	1	0	0	0	0	0
29	58	72	68	72	78	23	45	16	80	146	66	49	60	62	20	15	20	27	34	24	54	13	4	7	17	7	9	7	4	0		0	0	0	0
29	44	35	36	22	15	7	16	20	23	16	18	34	66	56	32	61	64	36	53	60	67	35	21	6	11	13	9	8	3	1	0	0	0	0	6
41	51	55	59	48	47	43	43	46	30	19	38	111	90	42	38	49	68	68	83	121	93	73	58	23	24	29	36	22	7	2	1	0	1	3	26
80	111	98	66	68	95	84	64	71	50	27	48	50	65	73	83	59	66	81	99	102	78	91	62	47	49	62	65	38	13	5	4	2	3	6	37
56	43	36	23	19	30	66	54	59	68	44	22	64	88	129	94	72	82	78	78	98	101	66	62	66	67	77	69	40	3	6	13	13	11	12	27
													0	19	74	96	90	81	67	50	42	49	78	85	72	55	27	0							
																1	0	0	0			0	1	0	0										

Figure 16. SATOB 401 - 700 hPa vector mean wind. APRIL 2005
All observations
Arrows are plotted where greater than 10 obs are present

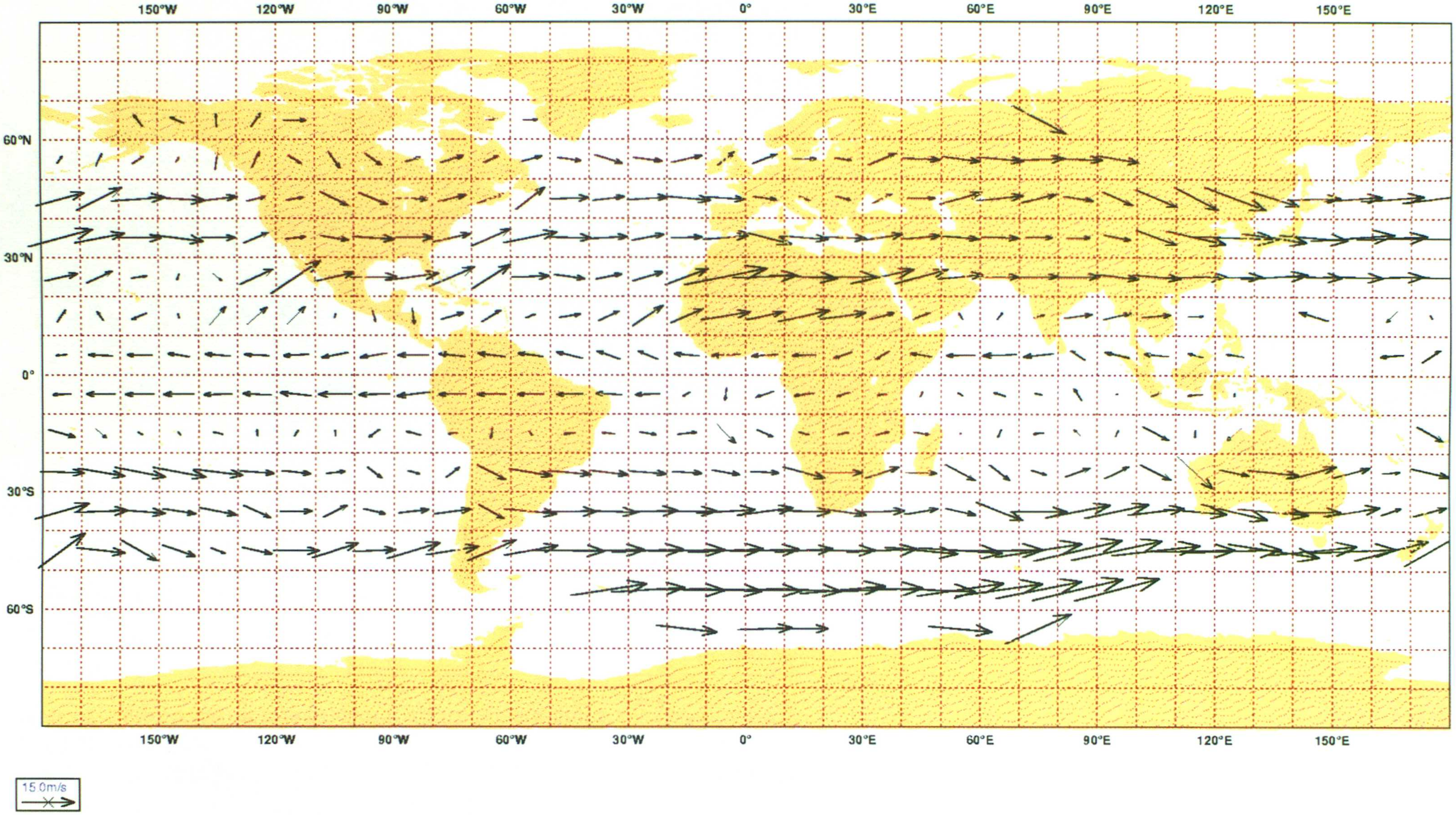

150°W
120°W
90°W
60°W
30°W
0°
30°E
60°E
90°E
120°E
150°E
60°N
30°N
0°
30°S
60°S
15.0m/s

Figure 17. SATOB 401 - 700 hPa mean vector wind differences. APRIL 2005
All observations
Arrows are plotted where greater than 10 obs are present

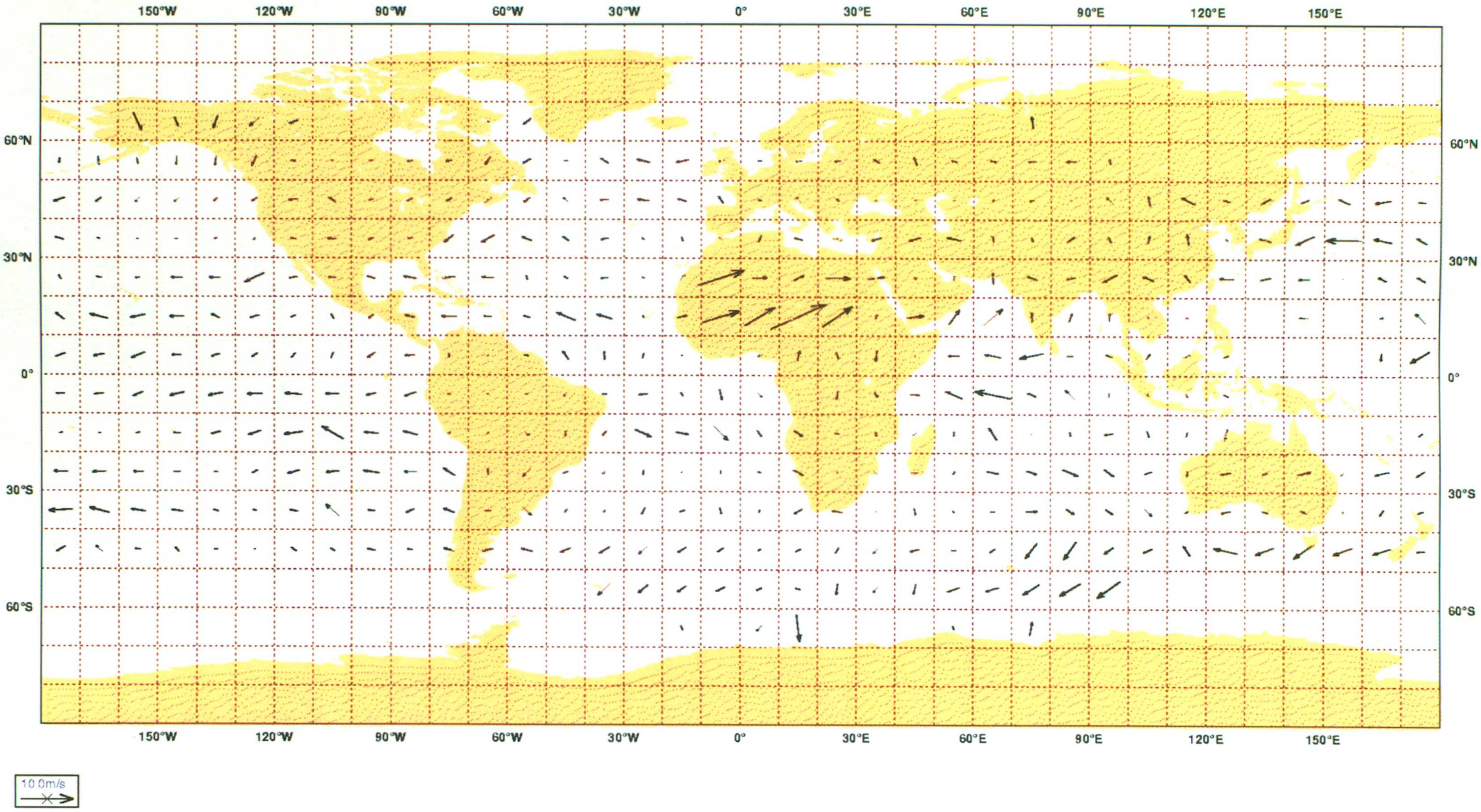
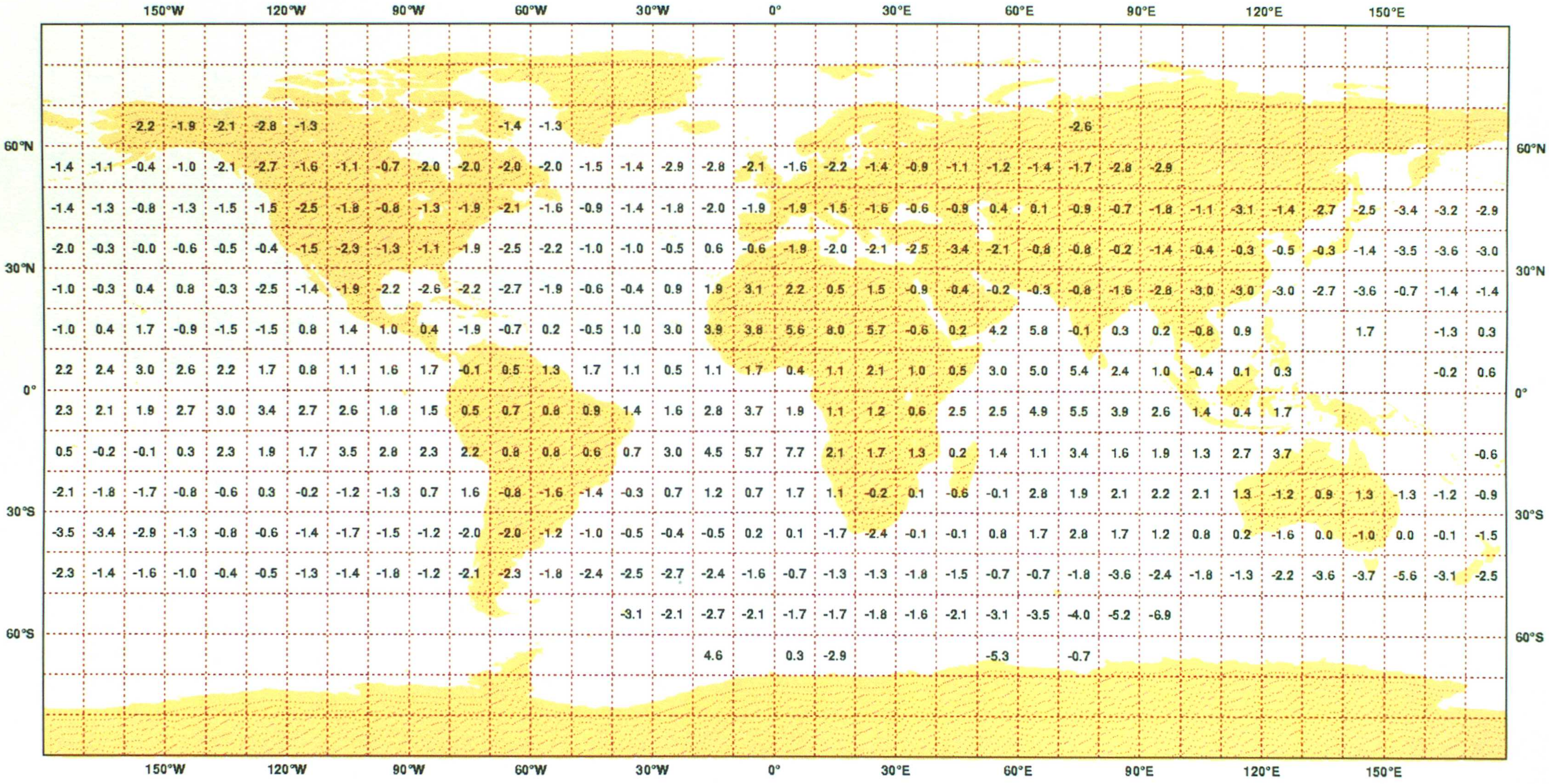

150°W
120°W
90°W
60°W
30°W
0°
30°E
60°E
90°E
120°E
150°E
60°N
30°N
0°
30°S
60°S
10.0m/s

Figure 18. SATOB 401 - 700 hPa mean O-B speed differences (ms-1). APRIL 2005
All observations
Values are plotted where greater than 10 obs are present



		-2.2	-1.9	-2.1	-2.8	-1.3					-1.4	-1.3													-2.6										
-1.4	-1.1	-0.4	-1.0	-2.1	-2.7	-1.6	-1.1	-0.7	-2.0	-2.0	-2.0	-2.0	-1.5	-1.4	-2.9	-2.8	-2.1	-1.6	-2.2	-1.4	-0.9	-1.1	-1.2	-1.4	-1.7	-2.8	-2.9								
-1.4	-1.3	-0.8	-1.3	-1.5	-1.5	-2.5	-1.8	-0.8	-1.3	-1.9	-2.1	-1.6	-0.9	-1.4	-1.8	-2.0	-1.9	-1.9	-1.5	-1.6	-0.6	-0.9	0.4	0.1	-0.9	-0.7	-1.8	-1.1	-3.1	-1.4	-2.7	-2.5	-3.4	-3.2	-2.9
-2.0	-0.3	-0.0	-0.6	-0.5	-0.4	-1.5	-2.3	-1.3	-1.1	-1.9	-2.5	-2.2	-1.0	-1.0	-0.5	0.6	-0.6	-1.9	-2.0	-2.1	-2.5	-3.4	-2.1	-0.8	-0.8	-0.2	-1.4	-0.4	-0.3	-0.5	-0.3	-1.4	-3.5	-3.6	-3.0
-1.0	-0.3	0.4	0.8	-0.3	-2.5	-1.4	-1.9	-2.2	-2.6	-2.2	-2.7	-1.9	-0.6	-0.4	0.9	1.9	3.1	2.2	0.5	1.5	-0.9	-0.4	-0.2	-0.3	-0.8	-1.6	-2.8	-3.0	-3.0	-3.0	-2.7	-3.6	-0.7	-1.4	-1.4
-1.0	0.4	1.7	-0.9	-1.5	-1.5	0.8	1.4	1.0	0.4	-1.9	-0.7	0.2	-0.5	1.0	3.0	3.9	3.8	5.6	8.0	5.7	-0.6	0.2	4.2	5.8	-0.1	0.3	0.2	-0.8	0.9			1.7		-1.3	0.3
2.2	2.4	3.0	2.6	2.2	1.7	0.8	1.1	1.6	1.7	-0.1	0.5	1.3	1.7	1.1	0.5	1.1	1.7	0.4	1.1	2.1	1.0	0.5	3.0	5.0	5.4	2.4	1.0	-0.4	0.1	0.3				-0.2	0.6
2.3	2.1	1.9	2.7	3.0	3.4	2.7	2.6	1.8	1.5	0.5	0.7	0.8	0.9	1.4	1.6	2.8	3.7	1.9	1.1	1.2	0.6	2.5	2.5	4.9	5.5	3.9	2.6	1.4	0.4	1.7					
0.5	-0.2	-0.1	0.3	2.3	1.9	1.7	3.5	2.8	2.3	2.2	0.8	0.8	0.6	0.7	3.0	4.5	5.7	7.7	2.1	1.7	1.3	0.2	1.4	1.1	3.4	1.6	1.9	1.3	2.7	3.7					-0.6
-2.1	-1.8	-1.7	-0.8	-0.6	0.3	-0.2	-1.2	-1.3	0.7	1.6	-0.8	-1.6	-1.4	-0.3	0.7	1.2	0.7	1.7	1.1	-0.2	0.1	-0.6	-0.1	2.8	1.9	2.1	2.2	2.1	1.3	-1.2	0.9	1.3	-1.3	-1.2	-0.9
-3.5	-3.4	-2.9	-1.3	-0.8	-0.6	-1.4	-1.7	-1.5	-1.2	-2.0	-2.0	-1.2	-1.0	-0.5	-0.4	-0.5	0.2	0.1	-1.7	-2.4	-0.1	-0.1	0.8	1.7	2.8	1.7	1.2	0.8	0.2	-1.6	0.0	-1.0	0.0	-0.1	-1.5
-2.3	-1.4	-1.6	-1.0	-0.4	-0.5	-1.3	-1.4	-1.8	-1.2	-2.1	-2.3	-1.8	-2.4	-2.5	-2.7	-2.4	-1.6	-0.7	-1.3	-1.3	-1.8	-1.5	-0.7	-0.7	-1.8	-3.6	-2.4	-1.8	-1.3	-2.2	-3.6	-3.7	-5.6	-3.1	-2.5
														-3.1	-2.1	-2.7	-2.1	-1.7	-1.7	-1.8	-1.6	-2.1	-3.1	-3.5	-4.0	-5.2	-6.9								
																4.6		0.3	-2.9				-5.3		-0.7										

Figure 19. SATOB 401 - 700 hPa mean RMS O-B vector differences (ms-1). APRIL 2005
All observations
Values are plotted where greater than 10 obs are present

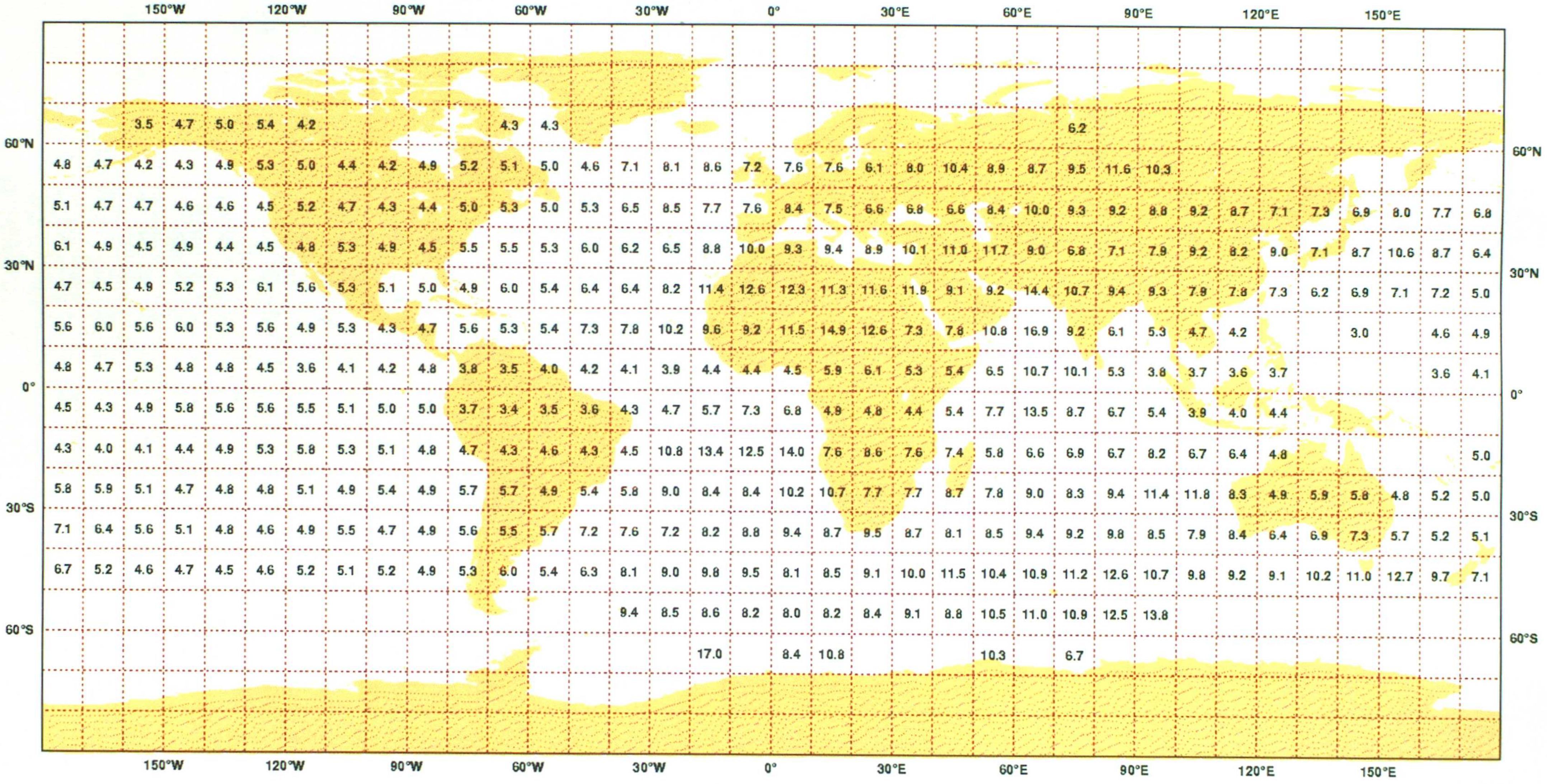
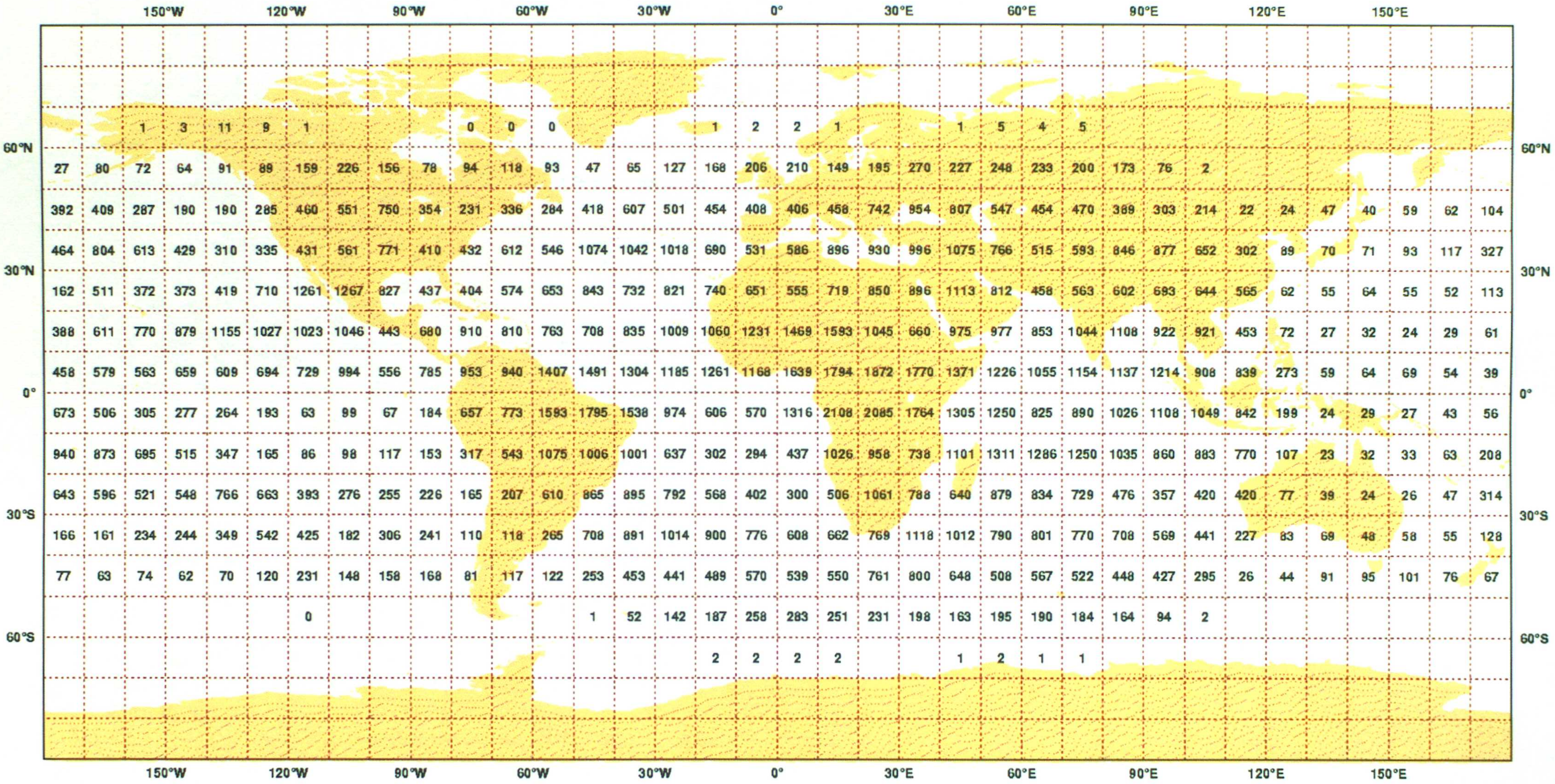

150°W
120°W
90°W
60°W
30°W
0°
30°E
60°E
90°E
120°E
150°E
60°N
30°N
0°
30°S
60°S
3.5 4.7 5.0 5.4 4.2 4.3 4.3 6.2
4.8 4.7 4.2 4.3 4.9 5.3 5.0 4.4 4.2 4.9 5.2 5.1 5.0 4.6 7.1 8.1 8.6 7.2 7.6 7.6 6.1 8.0 10.4 8.9 8.7 9.5 11.6 10.3
5.1 4.7 4.7 4.6 4.6 4.5 5.2 4.7 4.3 4.4 5.0 5.3 5.0 5.3 6.5 8.5 7.7 7.6 8.4 7.5 6.6 6.8 6.6 8.4 10.0 9.3 9.2 8.8 9.2 8.7 7.1 7.3 6.9 8.0 7.7 6.8
6.1 4.9 4.5 4.9 4.4 4.5 4.8 5.3 4.9 4.5 5.5 5.5 5.3 6.0 6.2 6.5 8.8 10.0 9.3 9.4 8.9 10.1 11.0 11.7 9.0 6.8 7.1 7.9 9.2 8.2 9.0 7.1 8.7 10.6 8.7 6.4
4.7 4.5 4.9 5.2 5.3 6.1 5.6 5.3 5.1 5.0 4.9 6.0 5.4 6.4 6.4 8.2 11.4 12.6 12.3 11.3 11.6 11.9 9.1 9.2 14.4 10.7 9.4 9.3 7.9 7.8 7.3 6.2 6.9 7.1 7.2 5.0
5.6 6.0 5.6 6.0 5.3 5.6 4.9 5.3 4.3 4.7 5.6 5.3 5.4 7.3 7.8 10.2 9.6 9.2 11.5 14.9 12.6 7.3 7.8 10.8 16.9 9.2 6.1 5.3 4.7 4.2 3.0 4.6 4.9
4.8 4.7 5.3 4.8 4.8 4.5 3.6 4.1 4.2 4.8 3.8 3.5 4.0 4.2 4.1 3.9 4.4 4.4 4.5 5.9 6.1 5.3 5.4 6.5 10.7 10.1 5.3 3.8 3.7 3.6 3.7 3.6 4.1
4.5 4.3 4.9 5.8 5.6 5.6 5.5 5.1 5.0 5.0 3.7 3.4 3.5 3.6 4.3 4.7 5.7 7.3 6.8 4.9 4.8 4.4 5.4 7.7 13.5 8.7 6.7 5.4 3.9 4.0 4.4
4.3 4.0 4.1 4.4 4.9 5.3 5.8 5.3 5.1 4.8 4.7 4.3 4.6 4.3 4.5 10.8 13.4 12.5 14.0 7.6 8.6 7.6 7.4 5.8 6.6 6.9 6.7 8.2 6.7 6.4 4.8 5.0
5.8 5.9 5.1 4.7 4.8 4.8 5.1 4.9 5.4 4.9 5.7 5.7 4.9 5.4 5.8 9.0 8.4 8.4 10.2 10.7 7.7 7.7 8.7 7.8 9.0 8.3 9.4 11.4 11.8 8.3 4.9 5.9 5.8 4.8 5.2 5.0
7.1 6.4 5.6 5.1 4.8 4.6 4.9 5.5 4.7 4.9 5.6 5.5 5.7 7.2 7.6 7.2 8.2 8.8 9.4 8.7 9.5 8.7 8.1 8.5 9.4 9.2 9.8 8.5 7.9 8.4 6.4 6.9 7.3 5.7 5.2 5.1
6.7 5.2 4.6 4.7 4.5 4.6 5.2 5.1 5.2 4.9 5.3 6.0 5.4 6.3 8.1 9.0 9.8 9.5 8.1 8.5 9.1 10.0 11.5 10.4 10.9 11.2 12.6 10.7 9.8 9.2 9.1 10.2 11.0 12.7 9.7 7.1
9.4 8.5 8.6 8.2 8.0 8.2 8.4 9.1 8.8 10.5 11.0 10.9 12.5 13.8
17.0 8.4 10.8 10.3 6.7

Figure 20. SATOB 101 - 400 hPa mean daily count. APRIL 2005
Global average number of observations in 24 hours = 214299



		1	3	11	9	1				0	0	0				1	2	2	1			1	5	4	5										
27	80	72	64	91	89	159	226	156	78	94	118	93	47	65	127	168	206	210	149	195	270	227	248	233	200	173	76	2							
392	409	287	190	190	285	460	551	750	354	231	336	284	418	607	501	454	408	406	458	742	954	807	547	454	470	389	303	214	22	24	47	40	59	62	104
464	804	613	429	310	335	431	561	771	410	432	612	546	1074	1042	1018	690	531	586	896	930	996	1075	766	515	593	846	877	652	302	89	70	71	93	117	327
162	511	372	373	419	710	1261	1267	827	437	404	574	653	843	732	821	740	651	555	719	850	896	1113	812	458	563	602	693	644	565	62	55	64	55	52	113
388	611	770	879	1155	1027	1023	1046	443	680	910	810	763	708	835	1009	1060	1231	1469	1593	1045	660	975	977	853	1044	1108	922	921	453	72	27	32	24	29	61
458	579	563	659	609	694	729	994	556	785	953	940	1407	1491	1304	1185	1261	1168	1639	1794	1872	1770	1371	1226	1055	1154	1137	1214	908	839	273	59	64	69	54	39
673	506	305	277	264	193	63	99	67	184	657	773	1593	1795	1538	974	606	570	1316	2108	2085	1764	1305	1250	825	890	1026	1108	1049	842	199	24	29	27	43	56
940	873	695	515	347	165	86	98	117	153	317	543	1075	1006	1001	637	302	294	437	1026	958	738	1101	1311	1286	1250	1035	860	883	770	107	23	32	33	63	208
643	596	521	548	766	663	393	276	255	226	165	207	610	865	895	792	568	402	300	506	1061	788	640	879	834	729	476	357	420	420	77	39	24	26	47	314
166	161	234	244	349	542	425	182	306	241	110	118	265	708	891	1014	900	776	608	662	769	1118	1012	790	801	770	708	569	441	227	83	69	48	58	55	128
77	63	74	62	70	120	231	148	158	168	81	117	122	253	453	441	489	570	539	550	761	800	648	508	567	522	448	427	295	26	44	91	95	101	76	67
						0							1	52	142	187	258	283	251	231	198	163	195	190	184	164	94	2							
																2	2	2	2			1	2	1	1										

Figure 21. SATOB 101 - 400 hPa vector mean wind. APRIL 2005
All observations
Arrows are plotted where greater than 10 obs are present

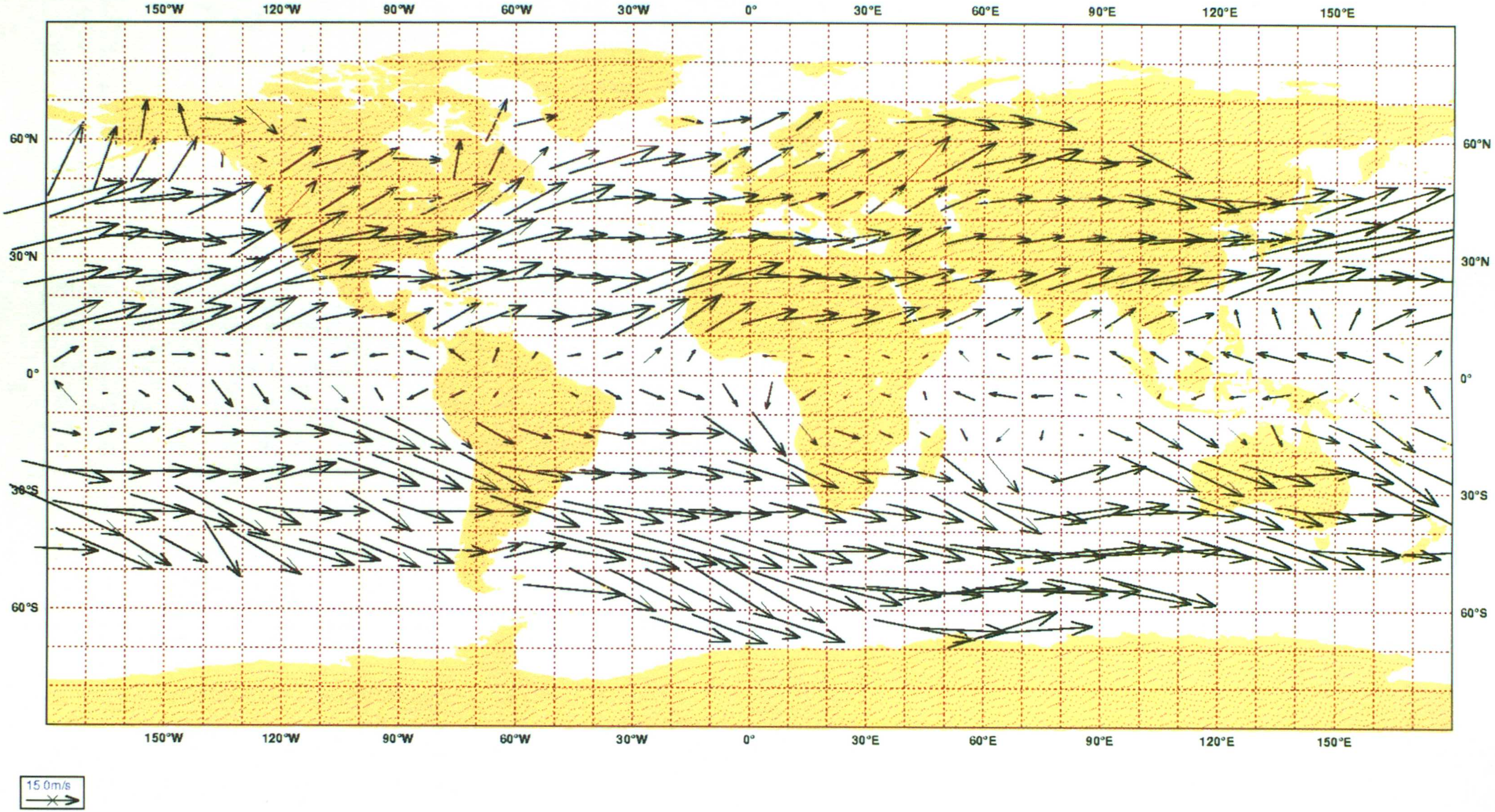

150°W
120°W
90°W
60°W
30°W
0°
30°E
60°E
90°E
120°E
150°E
60°N
30°N
0°
30°S
60°S
15.0m/s

Figure 22. SATOB 101 - 400 hPa mean vector wind differences. APRIL 2005
All observations
Arrows are plotted where greater than 10 obs are present

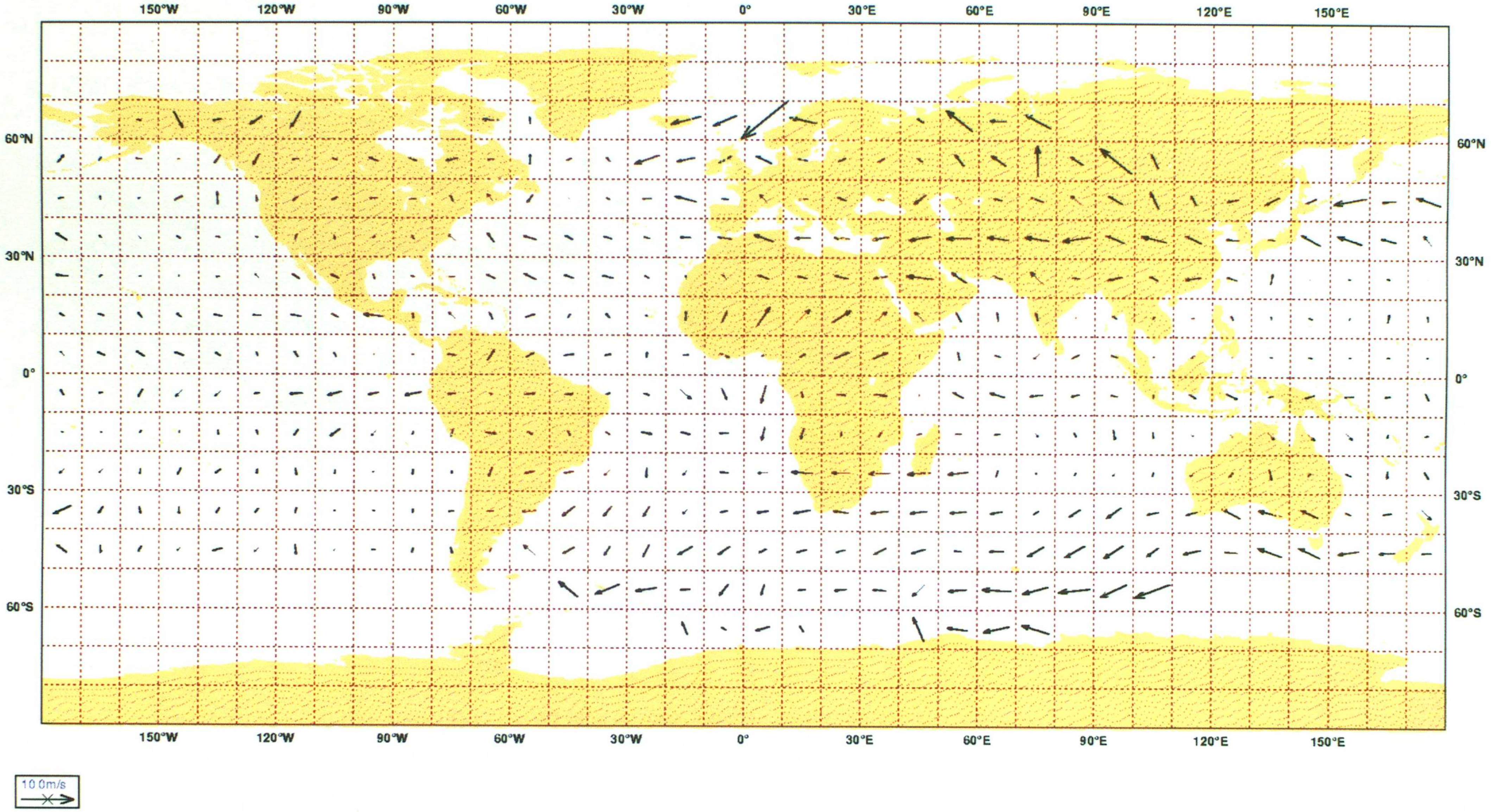

150°W
120°W
90°W
60°W
30°W
0°
30°E
60°E
90°E
120°E
150°E
60°N
30°N
0°
30°S
60°S
10.0m/s

Figure 23. SATOB 101 - 400 hPa mean O-B speed differences (ms-1). APRIL 2005
All observations
Values are plotted where greater than 10 obs are present

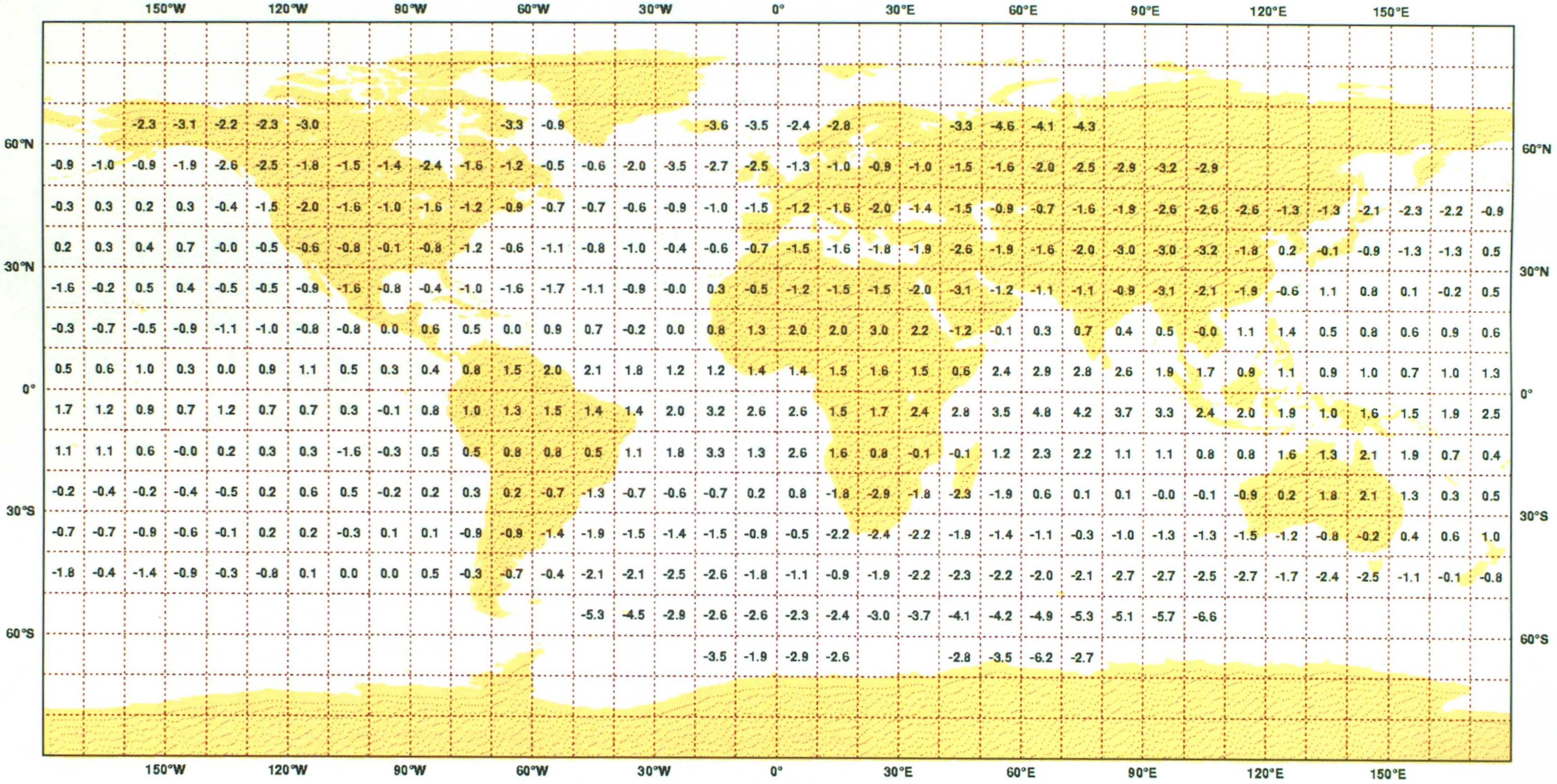
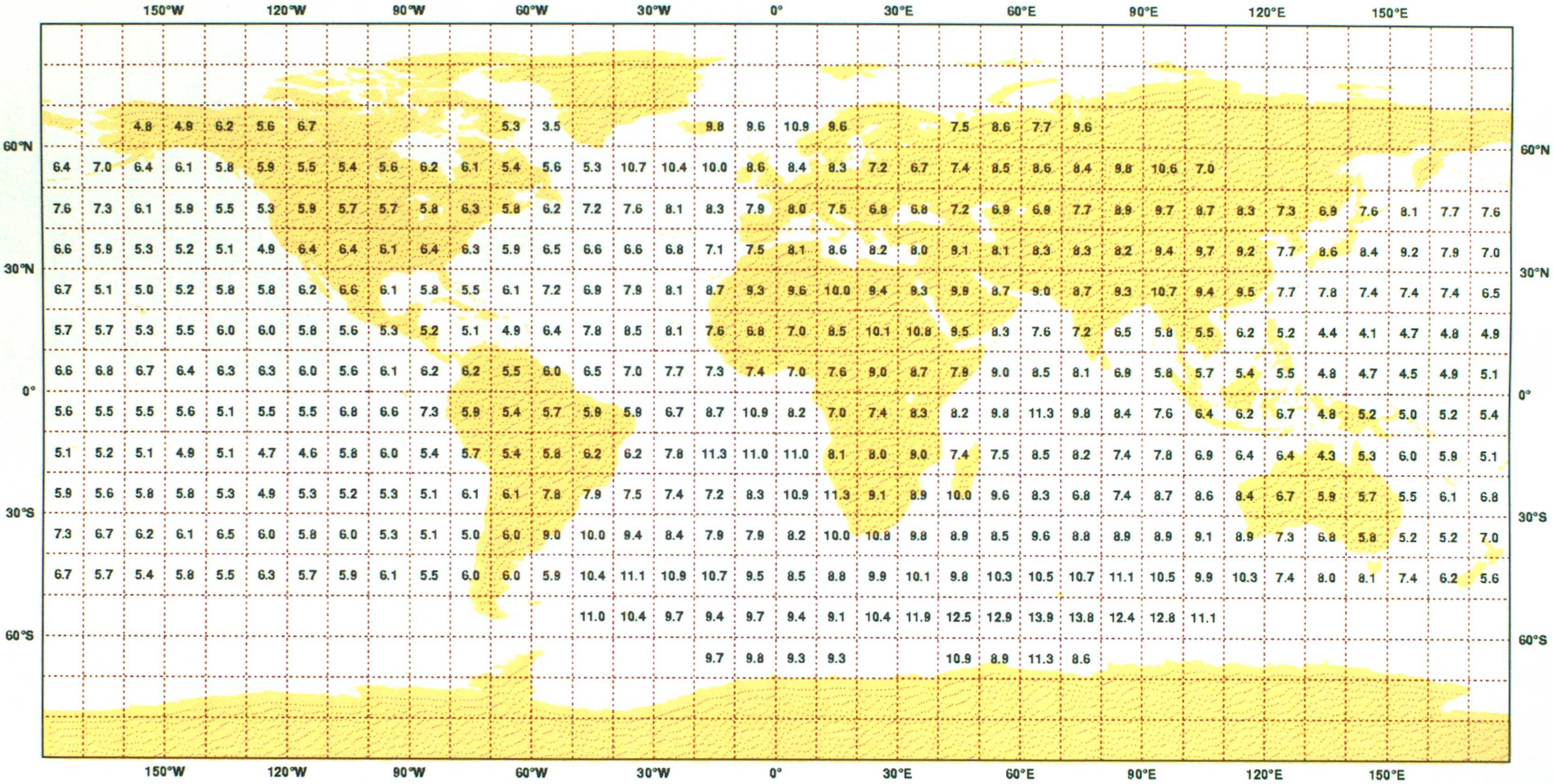

150°W
120°W
90°W
60°W
30°W
0°
30°E
60°E
90°E
120°E
150°E
60°N
30°N
0°
30°S
60°S
-2.3 -3.1 -2.2 -2.3 -3.0 -3.3 -0.9 -3.6 -3.5 -2.4 -2.8 -3.3 -4.6 -4.1 -4.3
-0.9 -1.0 -0.9 -1.9 -2.6 -2.5 -1.8 -1.5 -1.4 -2.4 -1.6 -1.2 -0.5 -0.6 -2.0 -3.5 -2.7 -2.5 -1.3 -1.0 -0.9 -1.0 -1.5 -1.6 -2.0 -2.5 -2.9 -3.2 -2.9
-0.3 0.3 0.2 0.3 -0.4 -1.5 -2.0 -1.6 -1.0 -1.6 -1.2 -0.9 -0.7 -0.7 -0.6 -0.9 -1.0 -1.5 -1.2 -1.6 -2.0 -1.4 -1.5 -0.9 -0.7 -1.6 -1.9 -2.6 -2.6 -2.6 -1.3 -1.3 -2.1 -2.3 -2.2 -0.9
0.2 0.3 0.4 0.7 -0.0 -0.5 -0.6 -0.8 -0.1 -0.8 -1.2 -0.6 -1.1 -0.8 -1.0 -0.4 -0.6 -0.7 -1.5 -1.6 -1.8 -1.9 -2.6 -1.9 -1.6 -2.0 -3.0 -3.0 -3.2 -1.8 0.2 -0.1 -0.9 -1.3 -1.3 0.5
-1.6 -0.2 0.5 0.4 -0.5 -0.5 -0.9 -1.6 -0.8 -0.4 -1.0 -1.6 -1.7 -1.1 -0.9 -0.0 0.3 -0.5 -1.2 -1.5 -1.5 -2.0 -3.1 -1.2 -1.1 -1.1 -0.9 -3.1 -2.1 -1.9 -0.6 1.1 0.8 0.1 -0.2 0.5
-0.3 -0.7 -0.5 -0.9 -1.1 -1.0 -0.8 -0.8 0.0 0.6 0.5 0.0 0.9 0.7 -0.2 0.0 0.8 1.3 2.0 2.0 3.0 2.2 -1.2 -0.1 0.3 0.7 0.4 0.5 -0.0 1.1 1.4 0.5 0.8 0.6 0.9 0.6
0.5 0.6 1.0 0.3 0.0 0.9 1.1 0.5 0.3 0.4 0.8 1.5 2.0 2.1 1.8 1.2 1.2 1.4 1.4 1.5 1.6 1.5 0.6 2.4 2.9 2.8 2.6 1.9 1.7 0.9 1.1 0.9 1.0 0.7 1.0 1.3
1.7 1.2 0.9 0.7 1.2 0.7 0.7 0.3 -0.1 0.8 1.0 1.3 1.5 1.4 1.4 2.0 3.2 2.6 2.6 1.5 1.7 2.4 2.8 3.5 4.8 4.2 3.7 3.3 2.4 2.0 1.9 1.0 1.6 1.5 1.9 2.5
1.1 1.1 0.6 -0.0 0.2 0.3 0.3 -1.6 -0.3 0.5 0.5 0.8 0.8 0.5 1.1 1.8 3.3 1.3 2.6 1.6 0.8 -0.1 -0.1 1.2 2.3 2.2 1.1 1.1 0.8 0.8 1.6 1.3 2.1 1.9 0.7 0.4
-0.2 -0.4 -0.2 -0.4 -0.5 0.2 0.6 0.5 -0.2 0.2 0.3 0.2 -0.7 -1.3 -0.7 -0.6 -0.7 0.2 0.8 -1.8 -2.9 -1.8 -2.3 -1.9 0.6 0.1 0.1 -0.0 -0.1 -0.9 0.2 1.8 2.1 1.3 0.3 0.5
-0.7 -0.7 -0.9 -0.6 -0.1 0.2 0.2 -0.3 0.1 0.1 -0.9 -0.9 -1.4 -1.9 -1.5 -1.4 -1.5 -0.9 -0.5 -2.2 -2.4 -2.2 -1.9 -1.4 -1.1 -0.3 -1.0 -1.3 -1.3 -1.5 -1.2 -0.8 -0.2 0.4 0.6 1.0
-1.8 -0.4 -1.4 -0.9 -0.3 -0.8 0.1 0.0 0.0 0.5 -0.3 -0.7 -0.4 -2.1 -2.1 -2.5 -2.6 -1.8 -1.1 -0.9 -1.9 -2.2 -2.3 -2.2 -2.0 -2.1 -2.7 -2.7 -2.5 -2.7 -1.7 -2.4 -2.5 -1.1 -0.1 -0.8
-5.3 -4.5 -2.9 -2.6 -2.6 -2.3 -2.4 -3.0 -3.7 -4.1 -4.2 -4.9 -5.3 -5.1 -5.7 -6.6
-3.5 -1.9 -2.9 -2.6 -2.8 -3.5 -6.2 -2.7

Figure 24. SATOB 101 - 400 hPa mean RMS O-B vector differences (ms-1). APRIL 2005
All observations
Values are plotted where greater than 10 obs are present


150°W
120°W
90°W
60°W
30°W
0°
30°E
60°E
90°E
120°E
150°E
60°N
30°N
0°
30°S
60°S

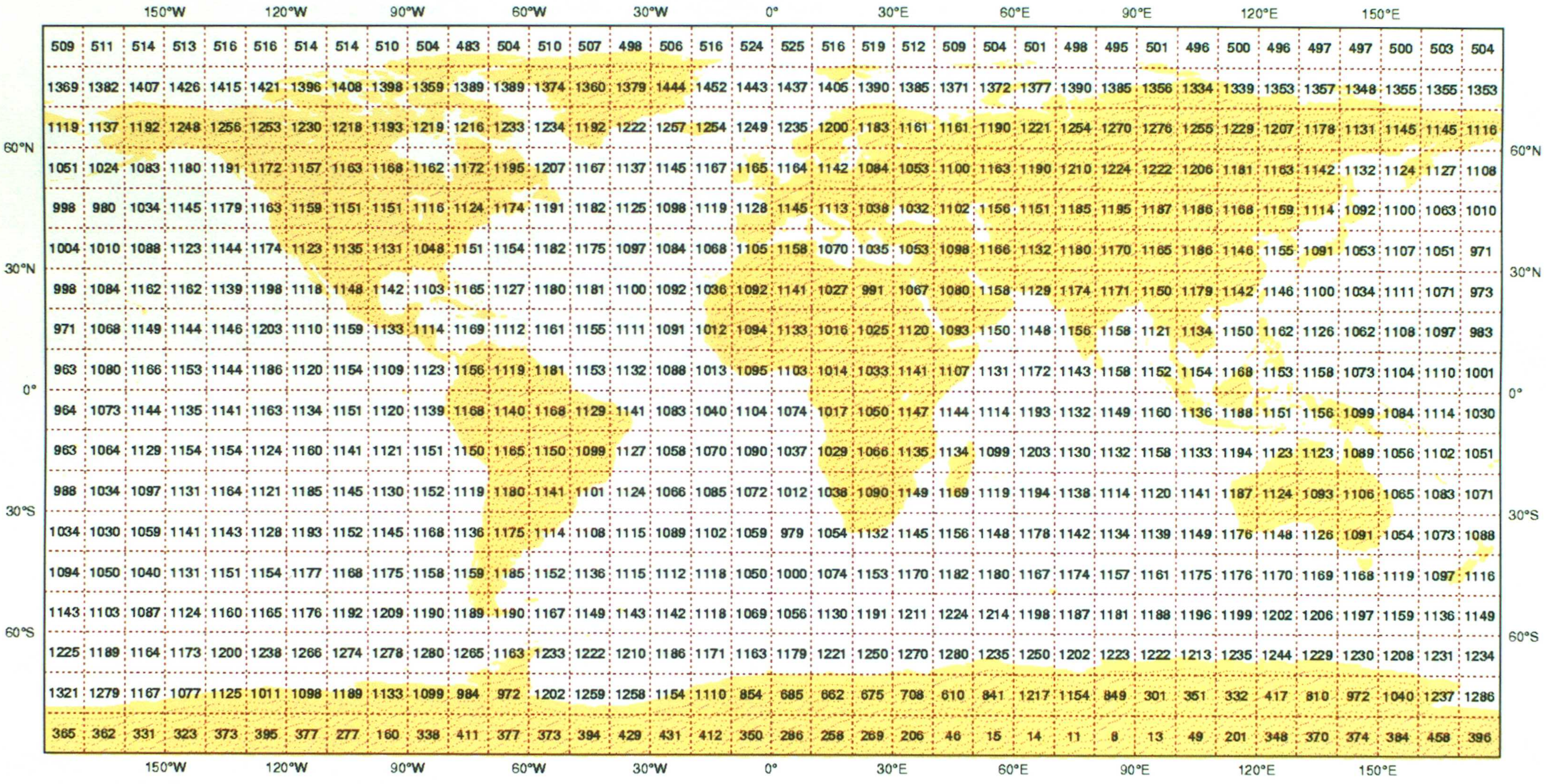
MONITORING OF SATELLITE TEMPERATURES

MONITORING CENTRE: EXETER

MONTH: Apr 2005

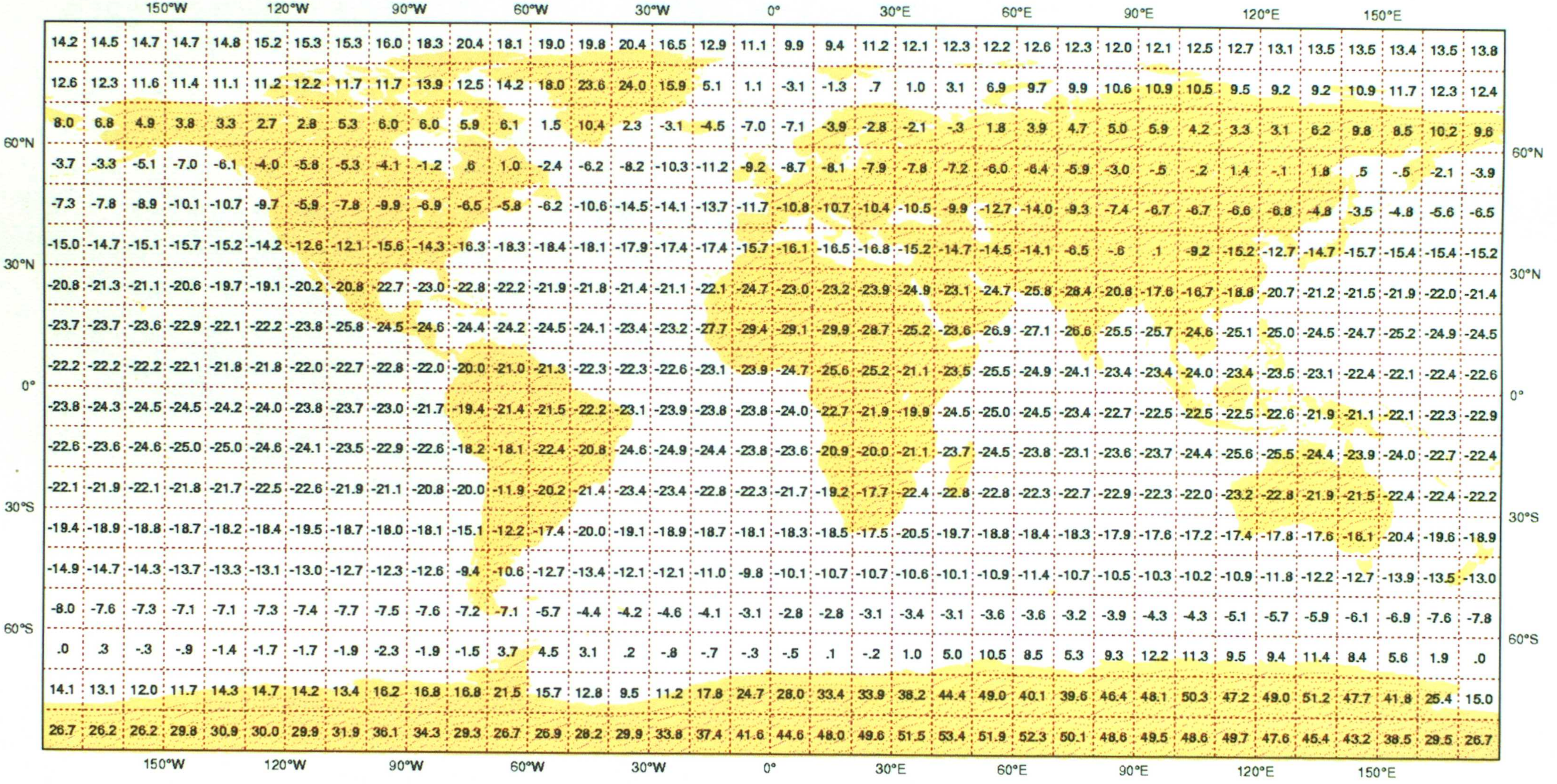
Monitoring procedures	
Period	:One calendar month.
Data monitored	:Reports from NOAA-15, NOAA-16 and NOAA-17.
Standard of comparison	:Background field from UKMO global model.
Selection Criteria	:All soundings.
Data Extracted	:Sounding channels (and approximate weighting function peaks, hPa) HIRS8 (Surface) HIRS15 (700) HIRS11 (500-700) HIRS4 (400) AMSUA5 (700) AMSUA7 (300) AMSUA9 (100) :Mean and standard deviation observation-minus-background brightness temperature differences

Figure 25. ATOVS mean daily count. APRIL 2005
NOAA15, using all observations
Global average number of observations in 24 hours = 685898



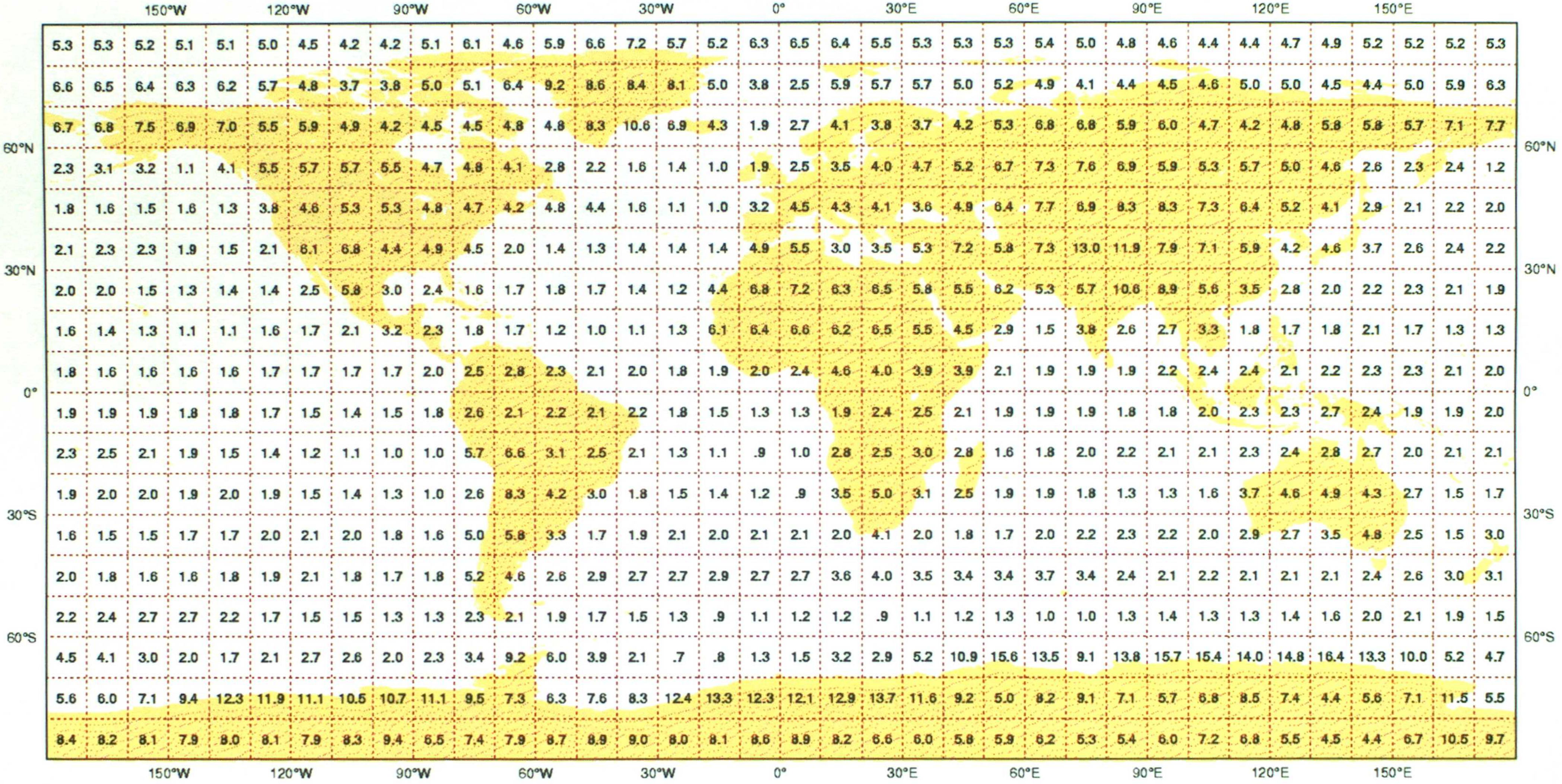
509	511	514	513	516	516	514	514	510	504	483	504	510	507	498	506	516	524	525	516	519	512	509	504	501	498	495	501	496	500	496	497	497	500	503	504
1369	1382	1407	1426	1415	1421	1396	1408	1398	1359	1389	1389	1374	1360	1379	1444	1452	1443	1437	1405	1390	1385	1371	1372	1377	1390	1385	1356	1334	1339	1353	1357	1348	1355	1355	1353
1119	1137	1192	1248	1256	1253	1230	1218	1193	1219	1216	1233	1234	1192	1222	1257	1254	1249	1235	1200	1183	1161	1161	1190	1221	1254	1270	1276	1255	1229	1207	1178	1131	1145	1145	1116
1051	1024	1083	1180	1191	1172	1157	1163	1168	1162	1172	1195	1207	1167	1137	1145	1167	1165	1164	1142	1084	1053	1100	1163	1190	1210	1224	1222	1206	1181	1163	1142	1132	1124	1127	1108
998	980	1034	1145	1179	1163	1159	1151	1151	1116	1124	1174	1191	1182	1125	1098	1119	1128	1145	1113	1038	1032	1102	1156	1151	1185	1195	1187	1186	1168	1159	1114	1092	1100	1063	1010
1004	1010	1088	1123	1144	1174	1123	1135	1131	1048	1151	1154	1182	1175	1097	1084	1068	1105	1158	1070	1035	1053	1098	1166	1132	1180	1170	1165	1186	1146	1155	1091	1053	1107	1051	971
998	1084	1162	1162	1139	1198	1118	1148	1142	1103	1165	1127	1180	1181	1100	1092	1036	1092	1141	1027	991	1067	1080	1158	1129	1174	1171	1150	1179	1142	1146	1100	1034	1111	1071	973
971	1068	1149	1144	1146	1203	1110	1159	1133	1114	1169	1112	1161	1155	1111	1091	1012	1094	1133	1016	1025	1120	1093	1150	1148	1156	1158	1121	1134	1150	1162	1126	1062	1108	1097	983
963	1080	1166	1153	1144	1186	1120	1154	1109	1123	1156	1119	1181	1153	1132	1088	1013	1095	1103	1014	1033	1141	1107	1131	1172	1143	1158	1152	1154	1168	1153	1158	1073	1104	1110	1001
964	1073	1144	1135	1141	1163	1134	1151	1120	1139	1168	1140	1168	1129	1141	1083	1040	1104	1074	1017	1050	1147	1144	1114	1193	1132	1149	1160	1136	1188	1151	1156	1099	1084	1114	1030
963	1064	1129	1154	1154	1124	1160	1141	1121	1151	1150	1165	1150	1099	1127	1058	1070	1090	1037	1029	1066	1135	1134	1099	1203	1130	1132	1158	1133	1194	1123	1123	1089	1056	1102	1051
988	1034	1097	1131	1164	1121	1185	1145	1130	1152	1119	1180	1141	1101	1124	1066	1085	1072	1012	1038	1090	1149	1169	1119	1194	1138	1114	1120	1141	1187	1124	1093	1106	1065	1083	1071
1034	1030	1059	1141	1143	1128	1193	1152	1145	1168	1136	1175	1114	1108	1115	1089	1102	1059	979	1054	1132	1145	1156	1148	1178	1142	1134	1139	1149	1176	1148	1126	1091	1054	1073	1088
1094	1050	1040	1131	1151	1154	1177	1168	1175	1158	1159	1185	1152	1136	1115	1112	1118	1050	1000	1074	1153	1170	1182	1180	1167	1174	1157	1161	1175	1176	1170	1169	1168	1119	1097	1116
1143	1103	1087	1124	1160	1165	1176	1192	1209	1190	1189	1190	1167	1149	1143	1142	1118	1069	1056	1130	1191	1211	1224	1214	1198	1187	1181	1188	1196	1199	1202	1206	1197	1159	1136	1149
1225	1189	1164	1173	1200	1238	1266	1274	1278	1280	1265	1163	1233	1222	1210	1186	1171	1163	1179	1221	1250	1270	1280	1235	1250	1202	1223	1222	1213	1235	1244	1229	1230	1208	1231	1234
1321	1279	1167	1077	1125	1011	1098	1189	1133	1099	984	972	1202	1259	1258	1154	1110	854	685	662	675	708	610	841	1217	1154	849	301	351	332	417	810	972	1040	1237	1286
365	362	331	323	373	395	377	277	160	338	411	377	373	394	429	431	412	350	286	258	269	206	46	15	14	11	8	13	49	201	348	370	374	384	458	396

Figure 26. ATOVS MEAN O-B brightness temperature differences (deg C). APRIL 2005
Channel: HIRS8 (Surface)
NOAA15, using all observations



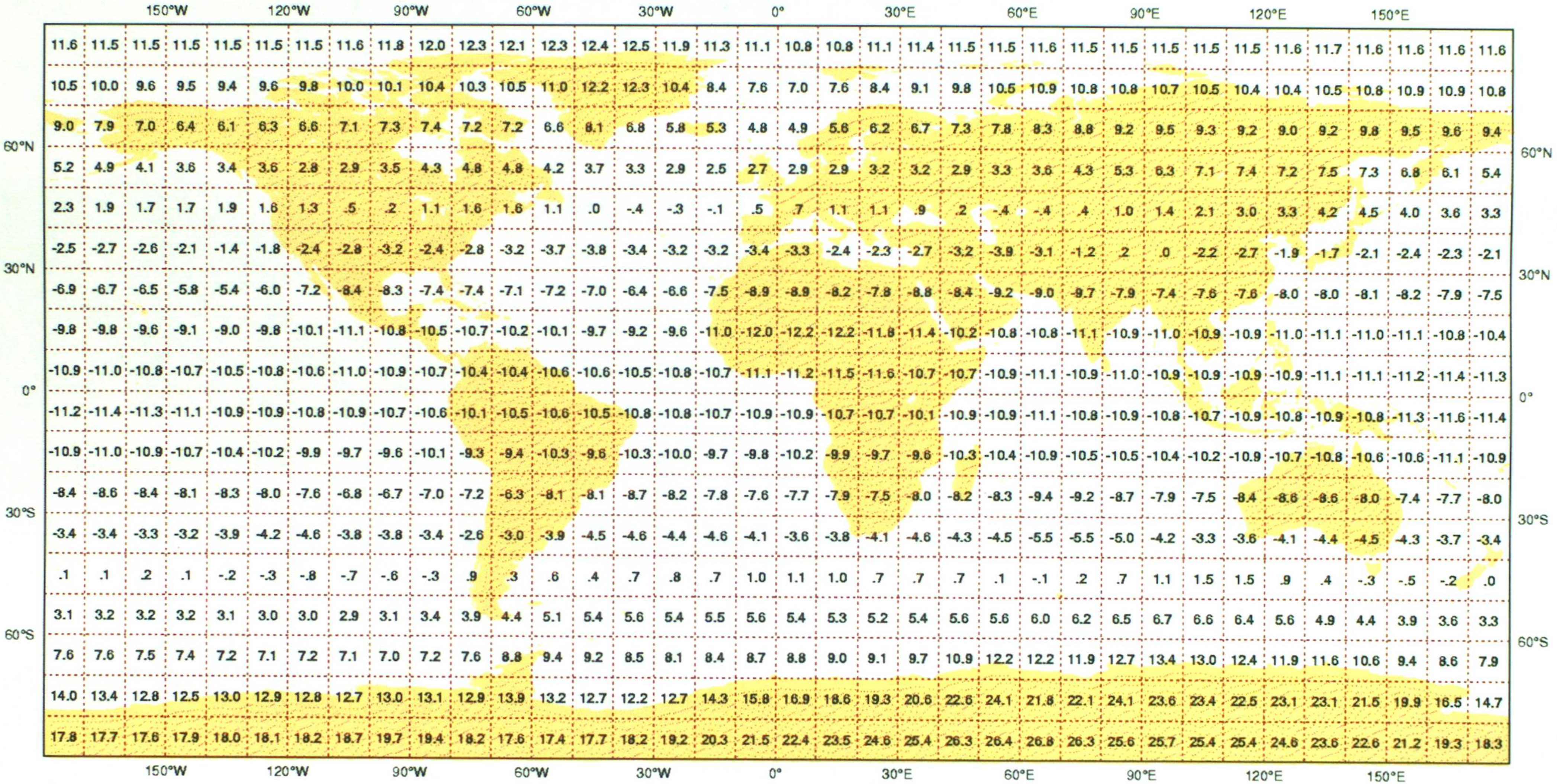
14.2	14.5	14.7	14.7	14.8	15.2	15.3	15.3	16.0	18.3	20.4	18.1	19.0	19.8	20.4	16.5	12.9	11.1	9.9	9.4	11.2	12.1	12.3	12.2	12.6	12.3	12.0	12.1	12.5	12.7	13.1	13.5	13.5	13.4	13.5	13.8
12.6	12.3	11.6	11.4	11.1	11.2	12.2	11.7	11.7	13.9	12.5	14.2	18.0	23.6	24.0	15.9	5.1	1.1	-3.1	-1.3	.7	1.0	3.1	6.9	9.7	9.9	10.6	10.9	10.5	9.5	9.2	9.2	10.9	11.7	12.3	12.4
8.0	6.8	4.9	3.8	3.3	2.7	2.8	5.3	6.0	6.0	5.9	6.1	1.5	10.4	2.3	-3.1	-4.5	-7.0	-7.1	-3.9	-2.8	-2.1	-.3	1.8	3.9	4.7	5.0	5.9	4.2	3.3	3.1	6.2	9.8	8.5	10.2	9.6
-3.7	-3.3	-5.1	-7.0	-6.1	-4.0	-5.8	-5.3	-4.1	-1.2	.6	1.0	-2.4	-6.2	-8.2	-10.3	-11.2	-9.2	-8.7	-8.1	-7.9	-7.8	-7.2	-6.0	-6.4	-5.9	-3.0	-.5	-.2	1.4	-.1	1.8	.5	-.5	-2.1	-3.9
-7.3	-7.8	-8.9	-10.1	-10.7	-9.7	-5.9	-7.8	-9.9	-6.9	-6.5	-5.8	-6.2	-10.6	-14.5	-14.1	-13.7	-11.7	-10.8	-10.7	-10.4	-10.5	-9.9	-12.7	-14.0	-9.3	-7.4	-6.7	-6.7	-6.6	-6.8	-4.8	-3.5	-4.8	-5.6	-6.5
-15.0	-14.7	-15.1	-15.7	-15.2	-14.2	-12.6	-12.1	-15.6	-14.3	-16.3	-18.3	-18.4	-18.1	-17.9	-17.4	-17.4	-15.7	-16.1	-16.5	-16.8	-15.2	-14.7	-14.5	-14.1	-6.5	-.6	.1	-9.2	-15.2	-12.7	-14.7	-15.7	-15.4	-15.4	-15.2
-20.8	-21.3	-21.1	-20.6	-19.7	-19.1	-20.2	-20.8	-22.7	-23.0	-22.8	-22.2	-21.9	-21.8	-21.4	-21.1	-22.1	-24.7	-23.0	-23.2	-23.9	-24.9	-23.1	-24.7	-25.8	-28.4	-20.8	-17.6	-16.7	-18.8	-20.7	-21.2	-21.5	-21.9	-22.0	-21.4
-23.7	-23.7	-23.6	-22.9	-22.1	-22.2	-23.8	-25.8	-24.5	-24.6	-24.4	-24.2	-24.5	-24.1	-23.4	-23.2	-27.7	-29.4	-29.1	-29.9	-28.7	-25.2	-23.6	-26.9	-27.1	-26.6	-25.5	-25.7	-24.6	-25.1	-25.0	-24.5	-24.7	-25.2	-24.9	-24.5
-22.2	-22.2	-22.2	-22.1	-21.8	-21.8	-22.0	-22.7	-22.8	-22.0	-20.0	-21.0	-21.3	-22.3	-22.3	-22.6	-23.1	-23.9	-24.7	-25.6	-25.2	-21.1	-23.5	-25.5	-24.9	-24.1	-23.4	-23.4	-24.0	-23.4	-23.5	-23.1	-22.4	-22.1	-22.4	-22.6
-23.8	-24.3	-24.5	-24.5	-24.2	-24.0	-23.8	-23.7	-23.0	-21.7	-19.4	-21.4	-21.5	-22.2	-23.1	-23.9	-23.8	-23.8	-24.0	-22.7	-21.9	-19.9	-24.5	-25.0	-24.5	-23.4	-22.7	-22.5	-22.5	-22.5	-22.6	-21.9	-21.1	-22.1	-22.3	-22.9
-22.6	-23.6	-24.6	-25.0	-25.0	-24.6	-24.1	-23.5	-22.9	-22.6	-18.2	-18.1	-22.4	-20.8	-24.6	-24.9	-24.4	-23.8	-23.6	-20.9	-20.0	-21.1	-23.7	-24.5	-23.8	-23.1	-23.6	-23.7	-24.4	-25.6	-25.5	-24.4	-23.9	-24.0	-22.7	-22.4
-22.1	-21.9	-22.1	-21.8	-21.7	-22.5	-22.6	-21.9	-21.1	-20.8	-20.0	-11.9	-20.2	-21.4	-23.4	-23.4	-22.8	-22.3	-21.7	-19.2	-17.7	-22.4	-22.8	-22.8	-22.3	-22.7	-22.9	-22.3	-22.0	-23.2	-22.8	-21.9	-21.5	-22.4	-22.4	-22.2
-19.4	-18.9	-18.8	-18.7	-18.2	-18.4	-19.5	-18.7	-18.0	-18.1	-15.1	-12.2	-17.4	-20.0	-19.1	-18.9	-18.7	-18.1	-18.3	-18.5	-17.5	-20.5	-19.7	-18.8	-18.4	-18.3	-17.9	-17.6	-17.2	-17.4	-17.8	-17.6	-16.1	-20.4	-19.6	-18.9
-14.9	-14.7	-14.3	-13.7	-13.3	-13.1	-13.0	-12.7	-12.3	-12.6	-9.4	-10.6	-12.7	-13.4	-12.1	-12.1	-11.0	-9.8	-10.1	-10.7	-10.7	-10.6	-10.1	-10.9	-11.4	-10.7	-10.5	-10.3	-10.2	-10.9	-11.8	-12.2	-12.7	-13.9	-13.5	-13.0
-8.0	-7.6	-7.3	-7.1	-7.1	-7.3	-7.4	-7.7	-7.5	-7.6	-7.2	-7.1	-5.7	-4.4	-4.2	-4.6	-4.1	-3.1	-2.8	-2.8	-3.1	-3.4	-3.1	-3.6	-3.6	-3.2	-3.9	-4.3	-4.3	-5.1	-5.7	-5.9	-6.1	-6.9	-7.6	-7.8
.0	.3	-.3	-.9	-1.4	-1.7	-1.7	-1.9	-2.3	-1.9	-1.5	3.7	4.5	3.1	.2	-.8	-.7	-.3	-.5	.1	-.2	1.0	5.0	10.5	8.5	5.3	9.3	12.2	11.3	9.5	9.4	11.4	8.4	5.6	1.9	.0
14.1	13.1	12.0	11.7	14.3	14.7	14.2	13.4	16.2	16.8	16.8	21.5	15.7	12.8	9.5	11.2	17.8	24.7	28.0	33.4	33.9	38.2	44.4	49.0	40.1	39.6	46.4	48.1	50.3	47.2	49.0	51.2	47.7	41.8	25.4	15.0
26.7	26.2	26.2	29.8	30.9	30.0	29.9	31.9	36.1	34.3	29.3	26.7	26.9	28.2	29.9	33.8	37.4	41.6	44.6	48.0	49.6	51.5	53.4	51.9	52.3	50.1	48.6	49.5	48.6	49.7	47.6	45.4	43.2	38.5	29.5	26.7

Figure 27. ATOVS SD O-B brightness temperature differences (deg C). APRIL 2005
Channel: HIRS8 (Surface)
NOAA15, using all observations



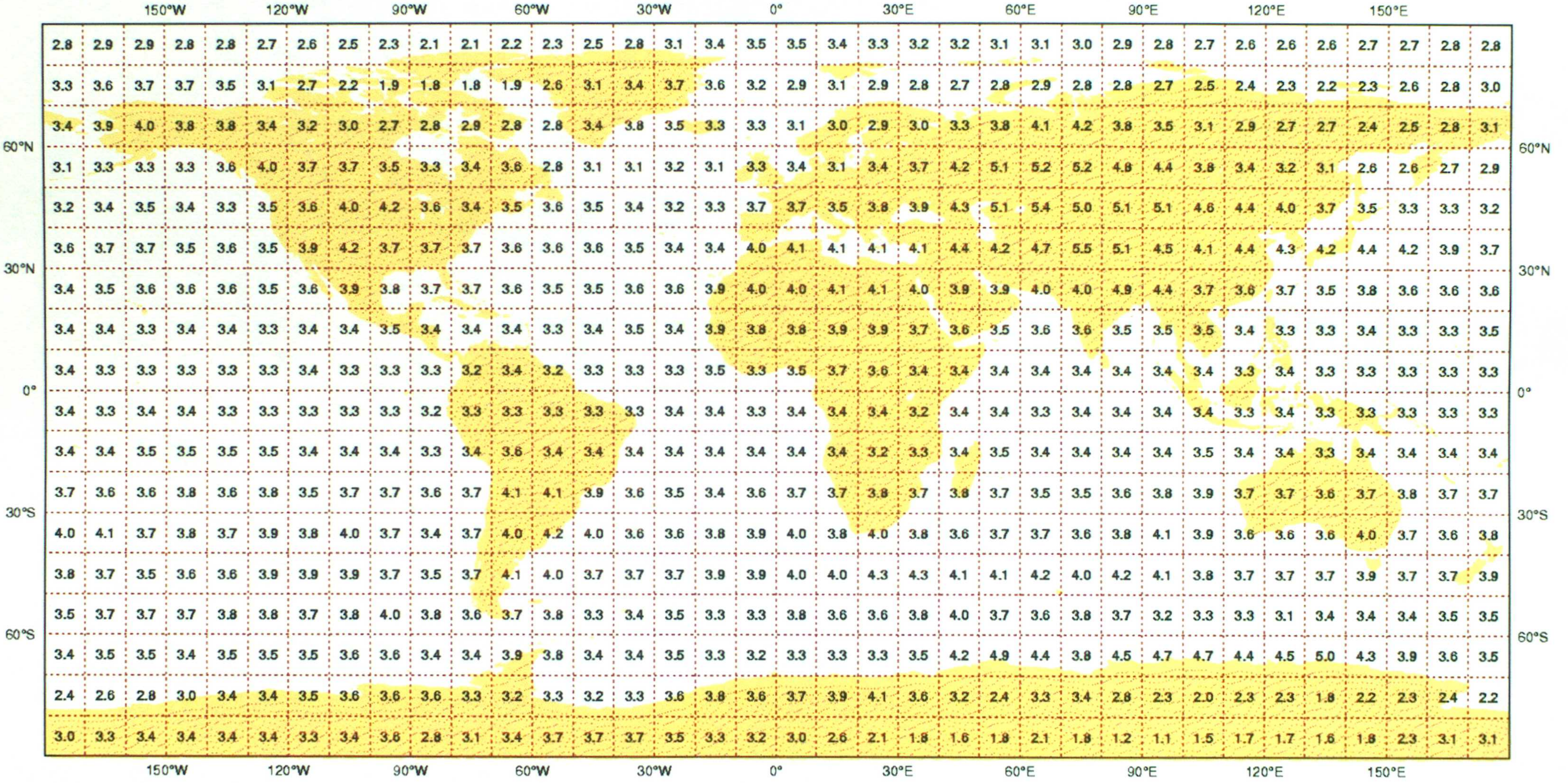
5.3	5.3	5.2	5.1	5.1	5.0	4.5	4.2	4.2	5.1	6.1	4.6	5.9	6.6	7.2	5.7	5.2	6.3	6.5	6.4	5.5	5.3	5.3	5.3	5.4	5.0	4.8	4.6	4.4	4.4	4.7	4.9	5.2	5.2	5.2	5.3
6.6	6.5	6.4	6.3	6.2	5.7	4.8	3.7	3.8	5.0	5.1	6.4	9.2	8.6	8.4	8.1	5.0	3.8	2.5	5.9	5.7	5.7	5.0	5.2	4.9	4.1	4.4	4.5	4.6	5.0	5.0	4.5	4.4	5.0	5.9	6.3
6.7	6.8	7.5	6.9	7.0	5.5	5.9	4.9	4.2	4.5	4.5	4.8	4.8	8.3	10.6	6.9	4.3	1.9	2.7	4.1	3.8	3.7	4.2	5.3	6.8	6.8	5.9	6.0	4.7	4.2	4.8	5.8	5.8	5.7	7.1	7.7
2.3	3.1	3.2	1.1	4.1	5.5	5.7	5.7	5.5	4.7	4.8	4.1	2.8	2.2	1.6	1.4	1.0	1.9	2.5	3.5	4.0	4.7	5.2	6.7	7.3	7.6	6.9	5.9	5.3	5.7	5.0	4.6	2.6	2.3	2.4	1.2
1.8	1.6	1.5	1.6	1.3	3.8	4.6	5.3	5.3	4.8	4.7	4.2	4.8	4.4	1.6	1.1	1.0	3.2	4.5	4.3	4.1	3.6	4.9	6.4	7.7	6.9	8.3	8.3	7.3	6.4	5.2	4.1	2.9	2.1	2.2	2.0
2.1	2.3	2.3	1.9	1.5	2.1	6.1	6.8	4.4	4.9	4.5	2.0	1.4	1.3	1.4	1.4	1.4	4.9	5.5	3.0	3.5	5.3	7.2	5.8	7.3	13.0	11.9	7.9	7.1	5.9	4.2	4.6	3.7	2.6	2.4	2.2
2.0	2.0	1.5	1.3	1.4	1.4	2.5	5.8	3.0	2.4	1.6	1.7	1.8	1.7	1.4	1.2	4.4	6.8	7.2	6.3	6.5	5.8	5.5	6.2	5.3	5.7	10.6	8.9	5.6	3.5	2.8	2.0	2.2	2.3	2.1	1.9
1.6	1.4	1.3	1.1	1.1	1.6	1.7	2.1	3.2	2.3	1.8	1.7	1.2	1.0	1.1	1.3	6.1	6.4	6.6	6.2	6.5	5.5	4.5	2.9	1.5	3.8	2.6	2.7	3.3	1.8	1.7	1.8	2.1	1.7	1.3	1.3
1.8	1.6	1.6	1.6	1.6	1.7	1.7	1.7	1.7	2.0	2.5	2.8	2.3	2.1	2.0	1.8	1.9	2.0	2.4	4.6	4.0	3.9	3.9	2.1	1.9	1.9	1.9	2.2	2.4	2.4	2.1	2.2	2.3	2.3	2.1	2.0
1.9	1.9	1.9	1.8	1.8	1.7	1.5	1.4	1.5	1.8	2.6	2.1	2.2	2.1	2.2	1.8	1.5	1.3	1.3	1.9	2.4	2.5	2.1	1.9	1.9	1.9	1.8	1.8	2.0	2.3	2.3	2.7	2.4	1.9	1.9	2.0
2.3	2.5	2.1	1.9	1.5	1.4	1.2	1.1	1.0	1.0	5.7	6.6	3.1	2.5	2.1	1.3	1.1	.9	1.0	2.8	2.5	3.0	2.8	1.6	1.8	2.0	2.2	2.1	2.1	2.3	2.4	2.8	2.7	2.0	2.1	2.1
1.9	2.0	2.0	1.9	2.0	1.9	1.5	1.4	1.3	1.0	2.6	8.3	4.2	3.0	1.8	1.5	1.4	1.2	.9	3.5	5.0	3.1	2.5	1.9	1.9	1.8	1.3	1.3	1.6	3.7	4.6	4.9	4.3	2.7	1.5	1.7
1.6	1.5	1.5	1.7	1.7	2.0	2.1	2.0	1.8	1.6	5.0	5.8	3.3	1.7	1.9	2.1	2.0	2.1	2.1	2.0	4.1	2.0	1.8	1.7	2.0	2.2	2.3	2.2	2.0	2.9	2.7	3.5	4.8	2.5	1.5	3.0
2.0	1.8	1.6	1.6	1.8	1.9	2.1	1.8	1.7	1.8	5.2	4.6	2.6	2.9	2.7	2.7	2.9	2.7	2.7	3.6	4.0	3.5	3.4	3.4	3.7	3.4	2.4	2.1	2.2	2.1	2.1	2.1	2.4	2.6	3.0	3.1
2.2	2.4	2.7	2.7	2.2	1.7	1.5	1.5	1.3	1.3	2.3	2.1	1.9	1.7	1.5	1.3	.9	1.1	1.2	1.2	.9	1.1	1.2	1.3	1.0	1.0	1.3	1.4	1.3	1.3	1.4	1.6	2.0	2.1	1.9	1.5
4.5	4.1	3.0	2.0	1.7	2.1	2.7	2.6	2.0	2.3	3.4	9.2	6.0	3.9	2.1	.7	.8	1.3	1.5	3.2	2.9	5.2	10.9	15.6	13.5	9.1	13.8	15.7	15.4	14.0	14.8	16.4	13.3	10.0	5.2	4.7
5.6	6.0	7.1	9.4	12.3	11.9	11.1	10.5	10.7	11.1	9.5	7.3	6.3	7.6	8.3	12.4	13.3	12.3	12.1	12.9	13.7	11.6	9.2	5.0	8.2	9.1	7.1	5.7	6.8	8.5	7.4	4.4	5.6	7.1	11.5	5.5
8.4	8.2	8.1	7.9	8.0	8.1	7.9	8.3	9.4	6.5	7.4	7.9	8.7	8.9	9.0	8.0	8.1	8.6	8.9	8.2	6.6	6.0	5.8	5.9	6.2	5.3	5.4	6.0	7.2	6.8	5.5	4.5	4.4	6.7	10.5	9.7

Figure 28. ATOVS MEAN O-B brightness temperature differences (deg C). APRIL 2005
Channel: HIRS15 (700 hPa)
NOAA15, using all observations



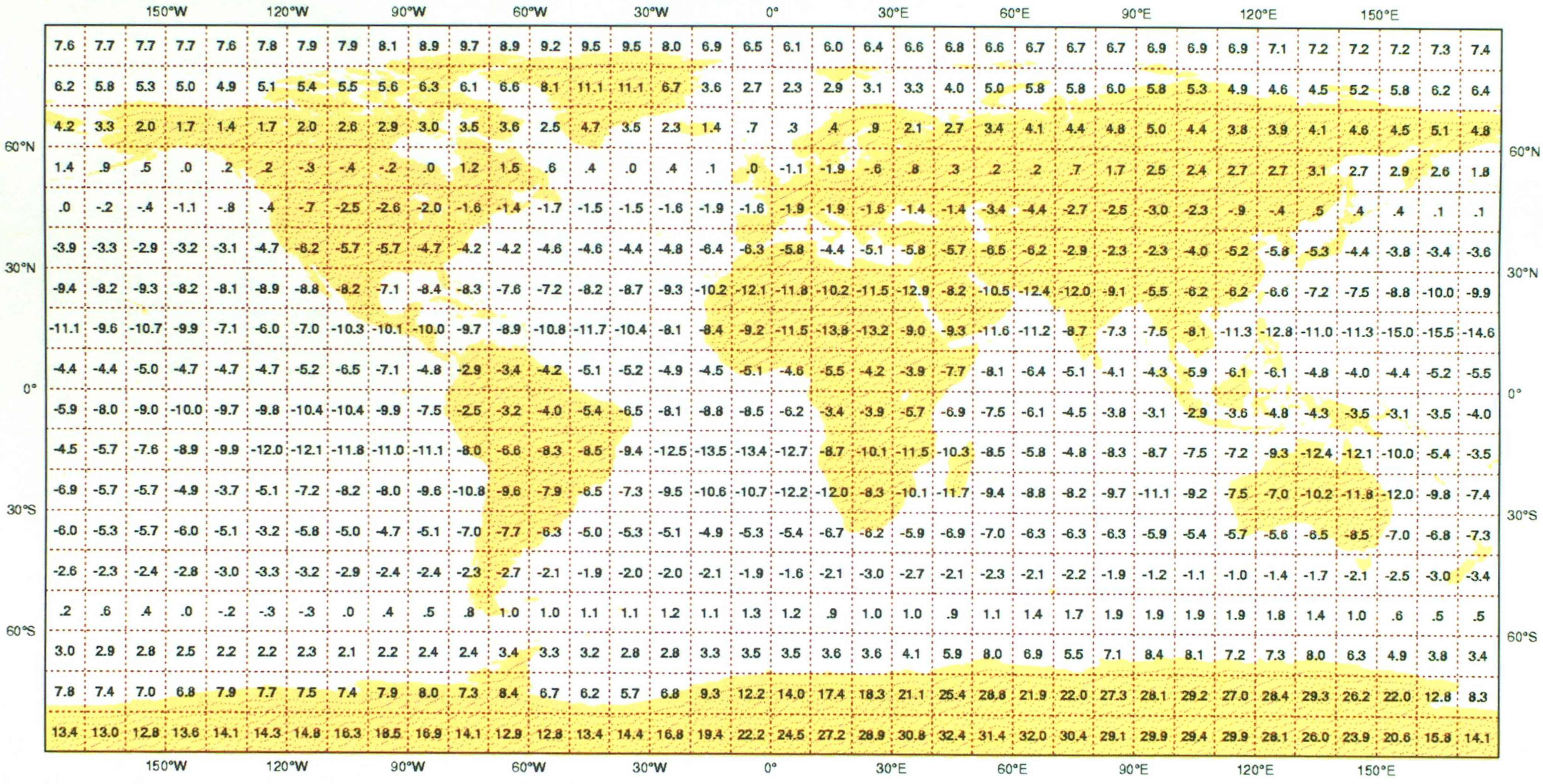
11.6	11.5	11.5	11.5	11.5	11.5	11.5	11.6	11.8	12.0	12.3	12.1	12.3	12.4	12.5	11.9	11.3	11.1	10.8	10.8	11.1	11.4	11.5	11.5	11.6	11.5	11.5	11.5	11.5	11.5	11.6	11.7	11.6	11.6	11.6	11.6
10.5	10.0	9.6	9.5	9.4	9.6	9.8	10.0	10.1	10.4	10.3	10.5	11.0	12.2	12.3	10.4	8.4	7.6	7.0	7.6	8.4	9.1	9.8	10.5	10.9	10.8	10.8	10.7	10.5	10.4	10.4	10.5	10.8	10.9	10.9	10.8
9.0	7.9	7.0	6.4	6.1	6.3	6.6	7.1	7.3	7.4	7.2	7.2	6.6	8.1	6.8	5.8	5.3	4.8	4.9	5.6	6.2	6.7	7.3	7.8	8.3	8.8	9.2	9.5	9.3	9.2	9.0	9.2	9.8	9.5	9.6	9.4
5.2	4.9	4.1	3.6	3.4	3.6	2.8	2.9	3.5	4.3	4.8	4.8	4.2	3.7	3.3	2.9	2.5	2.7	2.9	2.9	3.2	3.2	2.9	3.3	3.6	4.3	5.3	6.3	7.1	7.4	7.2	7.5	7.3	6.8	6.1	5.4
2.3	1.9	1.7	1.7	1.9	1.6	1.3	.5	.2	1.1	1.6	1.6	1.1	.0	-.4	-.3	-.1	.5	.7	1.1	1.1	.9	.2	-.4	-.4	.4	1.0	1.4	2.1	3.0	3.3	4.2	4.5	4.0	3.6	3.3
-2.5	-2.7	-2.6	-2.1	-1.4	-1.8	-2.4	-2.8	-3.2	-2.4	-2.8	-3.2	-3.7	-3.8	-3.4	-3.2	-3.2	-3.4	-3.3	-2.4	-2.3	-2.7	-3.2	-3.9	-3.1	-1.2	.2	.0	-2.2	-2.7	-1.9	-1.7	-2.1	-2.4	-2.3	-2.1
-6.9	-6.7	-6.5	-5.8	-5.4	-6.0	-7.2	-8.4	-8.3	-7.4	-7.4	-7.1	-7.2	-7.0	-6.4	-6.6	-7.5	-8.9	-8.9	-8.2	-7.8	-8.8	-8.4	-9.2	-9.0	-9.7	-7.9	-7.4	-7.6	-7.6	-8.0	-8.0	-8.1	-8.2	-7.9	-7.5
-9.8	-9.8	-9.6	-9.1	-9.0	-9.8	-10.1	-11.1	-10.8	-10.5	-10.7	-10.2	-10.1	-9.7	-9.2	-9.6	-11.0	-12.0	-12.2	-12.2	-11.8	-11.4	-10.2	-10.8	-10.8	-11.1	-10.9	-11.0	-10.9	-10.9	-11.0	-11.1	-11.0	-11.1	-10.8	-10.4
-10.9	-11.0	-10.8	-10.7	-10.5	-10.8	-10.6	-11.0	-10.9	-10.7	-10.4	-10.4	-10.6	-10.6	-10.5	-10.8	-10.7	-11.1	-11.2	-11.5	-11.6	-10.7	-10.7	-10.9	-11.1	-10.9	-11.0	-10.9	-10.9	-10.9	-10.9	-11.1	-11.1	-11.2	-11.4	-11.3
-11.2	-11.4	-11.3	-11.1	-10.9	-10.9	-10.8	-10.9	-10.7	-10.6	-10.1	-10.5	-10.6	-10.5	-10.8	-10.8	-10.7	-10.9	-10.9	-10.7	-10.7	-10.1	-10.9	-10.9	-11.1	-10.8	-10.9	-10.8	-10.7	-10.9	-10.8	-10.9	-10.8	-11.3	-11.6	-11.4
-10.9	-11.0	-10.9	-10.7	-10.4	-10.2	-9.9	-9.7	-9.6	-10.1	-9.3	-9.4	-10.3	-9.6	-10.3	-10.0	-9.7	-9.8	-10.2	-9.9	-9.7	-9.6	-10.3	-10.4	-10.9	-10.5	-10.5	-10.4	-10.2	-10.9	-10.7	-10.8	-10.6	-10.6	-11.1	-10.9
-8.4	-8.6	-8.4	-8.1	-8.3	-8.0	-7.6	-6.8	-6.7	-7.0	-7.2	-6.3	-8.1	-8.1	-8.7	-8.2	-7.8	-7.6	-7.7	-7.9	-7.5	-8.0	-8.2	-8.3	-9.4	-9.2	-8.7	-7.9	-7.5	-8.4	-8.6	-8.6	-8.0	-7.4	-7.7	-8.0
-3.4	-3.4	-3.3	-3.2	-3.9	-4.2	-4.6	-3.8	-3.8	-3.4	-2.6	-3.0	-3.9	-4.5	-4.6	-4.4	-4.6	-4.1	-3.6	-3.8	-4.1	-4.6	-4.3	-4.5	-5.5	-5.5	-5.0	-4.2	-3.3	-3.6	-4.1	-4.4	-4.5	-4.3	-3.7	-3.4
.1	.1	.2	.1	-.2	-.3	-.8	-.7	-.6	-.3	.9	.3	.6	.4	.7	.8	.7	1.0	1.1	1.0	.7	.7	.7	.1	-.1	.2	.7	1.1	1.5	1.5	.9	.4	-.3	-.5	-.2	.0
3.1	3.2	3.2	3.2	3.1	3.0	3.0	2.9	3.1	3.4	3.9	4.4	5.1	5.4	5.6	5.4	5.5	5.6	5.4	5.3	5.2	5.4	5.6	5.6	6.0	6.2	6.5	6.7	6.6	6.4	5.6	4.9	4.4	3.9	3.6	3.3
7.6	7.6	7.5	7.4	7.2	7.1	7.2	7.1	7.0	7.2	7.6	8.8	9.4	9.2	8.5	8.1	8.4	8.7	8.8	9.0	9.1	9.7	10.9	12.2	12.2	11.9	12.7	13.4	13.0	12.4	11.9	11.6	10.6	9.4	8.6	7.9
14.0	13.4	12.8	12.5	13.0	12.9	12.8	12.7	13.0	13.1	12.9	13.9	13.2	12.7	12.2	12.7	14.3	15.8	16.9	18.6	19.3	20.6	22.6	24.1	21.8	22.1	24.1	23.6	23.4	22.5	23.1	23.1	21.5	19.9	16.5	14.7
17.8	17.7	17.6	17.9	18.0	18.1	18.2	18.7	19.7	19.4	18.2	17.6	17.4	17.7	18.2	19.2	20.3	21.5	22.4	23.5	24.6	25.4	26.3	26.4	26.8	26.3	25.6	25.7	25.4	25.4	24.6	23.6	22.6	21.2	19.3	18.3

Figure 29. ATOVS SD O-B brightness temperature differences (deg C). APRIL 2005
Channel: HIRS15 (700 hPa)
NOAA15, using all observations



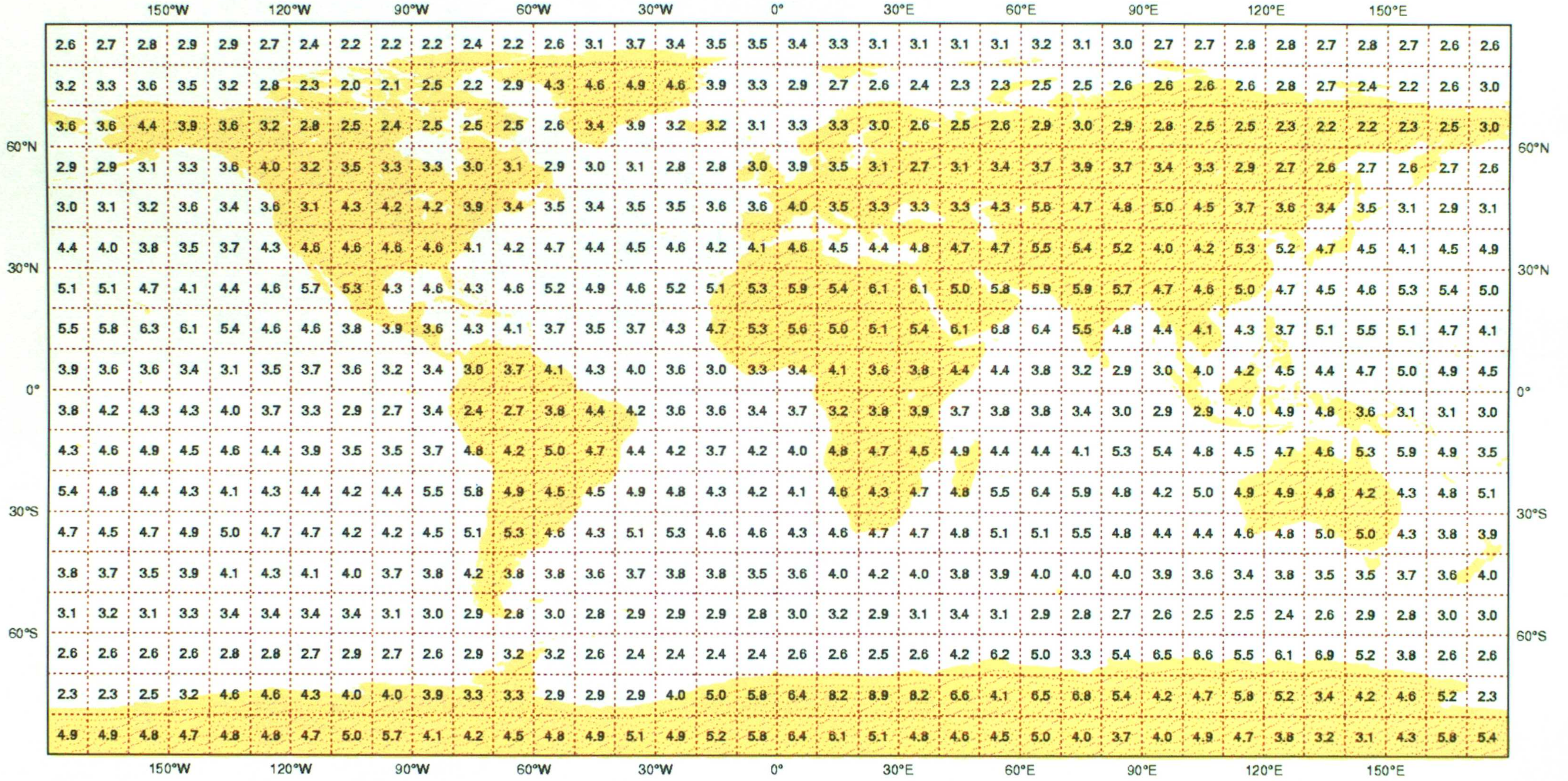
2.8	2.9	2.9	2.8	2.8	2.7	2.6	2.5	2.3	2.1	2.1	2.2	2.3	2.5	2.8	3.1	3.4	3.5	3.5	3.4	3.3	3.2	3.2	3.1	3.1	3.0	2.9	2.8	2.7	2.6	2.6	2.6	2.7	2.7	2.8	2.8
3.3	3.6	3.7	3.7	3.5	3.1	2.7	2.2	1.9	1.8	1.8	1.9	2.6	3.1	3.4	3.7	3.6	3.2	2.9	3.1	2.9	2.8	2.7	2.8	2.9	2.8	2.8	2.7	2.5	2.4	2.3	2.2	2.3	2.6	2.8	3.0
3.4	3.9	4.0	3.8	3.8	3.4	3.2	3.0	2.7	2.8	2.9	2.8	2.8	3.4	3.8	3.5	3.3	3.3	3.1	3.0	2.9	3.0	3.3	3.8	4.1	4.2	3.8	3.5	3.1	2.9	2.7	2.7	2.4	2.5	2.8	3.1
3.1	3.3	3.3	3.3	3.6	4.0	3.7	3.7	3.5	3.3	3.4	3.6	2.8	3.1	3.1	3.2	3.1	3.3	3.4	3.1	3.4	3.7	4.2	5.1	5.2	5.2	4.8	4.4	3.8	3.4	3.2	3.1	2.6	2.6	2.7	2.9
3.2	3.4	3.5	3.4	3.3	3.5	3.6	4.0	4.2	3.6	3.4	3.5	3.6	3.5	3.4	3.2	3.3	3.7	3.7	3.5	3.8	3.9	4.3	5.1	5.4	5.0	5.1	5.1	4.6	4.4	4.0	3.7	3.5	3.3	3.3	3.2
3.6	3.7	3.7	3.5	3.6	3.5	3.9	4.2	3.7	3.7	3.7	3.6	3.6	3.6	3.5	3.4	3.4	4.0	4.1	4.1	4.1	4.1	4.4	4.2	4.7	5.5	5.1	4.5	4.1	4.4	4.3	4.2	4.4	4.2	3.9	3.7
3.4	3.5	3.6	3.6	3.6	3.5	3.6	3.9	3.8	3.7	3.7	3.6	3.5	3.5	3.6	3.6	3.9	4.0	4.0	4.1	4.1	4.0	3.9	3.9	4.0	4.0	4.9	4.4	3.7	3.6	3.7	3.5	3.8	3.6	3.6	3.6
3.4	3.4	3.3	3.4	3.4	3.3	3.4	3.4	3.5	3.4	3.4	3.4	3.3	3.4	3.5	3.4	3.9	3.8	3.8	3.9	3.9	3.7	3.6	3.5	3.6	3.6	3.5	3.5	3.5	3.4	3.3	3.3	3.4	3.3	3.3	3.5
3.4	3.3	3.3	3.3	3.3	3.3	3.4	3.3	3.3	3.3	3.2	3.4	3.2	3.3	3.3	3.3	3.5	3.3	3.5	3.7	3.6	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.3	3.4	3.3	3.3	3.3	3.3	3.3
3.4	3.3	3.4	3.4	3.3	3.3	3.3	3.3	3.3	3.2	3.3	3.3	3.3	3.3	3.3	3.4	3.4	3.3	3.4	3.4	3.4	3.2	3.4	3.4	3.3	3.4	3.4	3.4	3.4	3.3	3.4	3.3	3.3	3.3	3.3	3.3
3.4	3.4	3.5	3.5	3.5	3.5	3.4	3.4	3.4	3.3	3.4	3.6	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.2	3.3	3.4	3.5	3.4	3.4	3.4	3.4	3.5	3.4	3.4	3.3	3.4	3.4	3.4	3.4
3.7	3.6	3.6	3.8	3.6	3.8	3.5	3.7	3.7	3.6	3.7	4.1	4.1	3.9	3.6	3.5	3.4	3.6	3.7	3.7	3.8	3.7	3.8	3.7	3.5	3.5	3.6	3.8	3.9	3.7	3.7	3.6	3.7	3.8	3.7	3.7
4.0	4.1	3.7	3.8	3.7	3.9	3.8	4.0	3.7	3.4	3.7	4.0	4.2	4.0	3.6	3.6	3.8	3.9	4.0	3.8	4.0	3.8	3.6	3.7	3.7	3.6	3.8	4.1	3.9	3.6	3.6	3.6	4.0	3.7	3.6	3.8
3.8	3.7	3.5	3.6	3.6	3.9	3.9	3.9	3.7	3.5	3.7	4.1	4.0	3.7	3.7	3.7	3.9	3.9	4.0	4.0	4.3	4.3	4.1	4.1	4.2	4.0	4.2	4.1	3.8	3.7	3.7	3.7	3.9	3.7	3.7	3.9
3.5	3.7	3.7	3.7	3.8	3.8	3.7	3.8	4.0	3.8	3.6	3.7	3.8	3.3	3.4	3.5	3.3	3.3	3.8	3.6	3.6	3.8	4.0	3.7	3.6	3.8	3.7	3.2	3.3	3.3	3.1	3.4	3.4	3.4	3.5	3.5
3.4	3.5	3.5	3.4	3.5	3.5	3.5	3.6	3.6	3.4	3.4	3.9	3.8	3.4	3.4	3.5	3.3	3.2	3.3	3.3	3.3	3.5	4.2	4.9	4.4	3.8	4.5	4.7	4.7	4.4	4.5	5.0	4.3	3.9	3.6	3.5
2.4	2.6	2.8	3.0	3.4	3.4	3.5	3.6	3.6	3.6	3.3	3.2	3.3	3.2	3.3	3.6	3.8	3.6	3.7	3.9	4.1	3.6	3.2	2.4	3.3	3.4	2.8	2.3	2.0	2.3	2.3	1.8	2.2	2.3	2.4	2.2
3.0	3.3	3.4	3.4	3.4	3.4	3.3	3.4	3.6	2.8	3.1	3.4	3.7	3.7	3.7	3.5	3.3	3.2	3.0	2.6	2.1	1.8	1.6	1.8	2.1	1.8	1.2	1.1	1.5	1.7	1.7	1.6	1.8	2.3	3.1	3.1

Figure 30. ATOVS MEAN O-B brightness temperature differences (deg C). APRIL 2005
Channel: HIRS11 (500 - 700 hPa)
NOAA15, using all observations



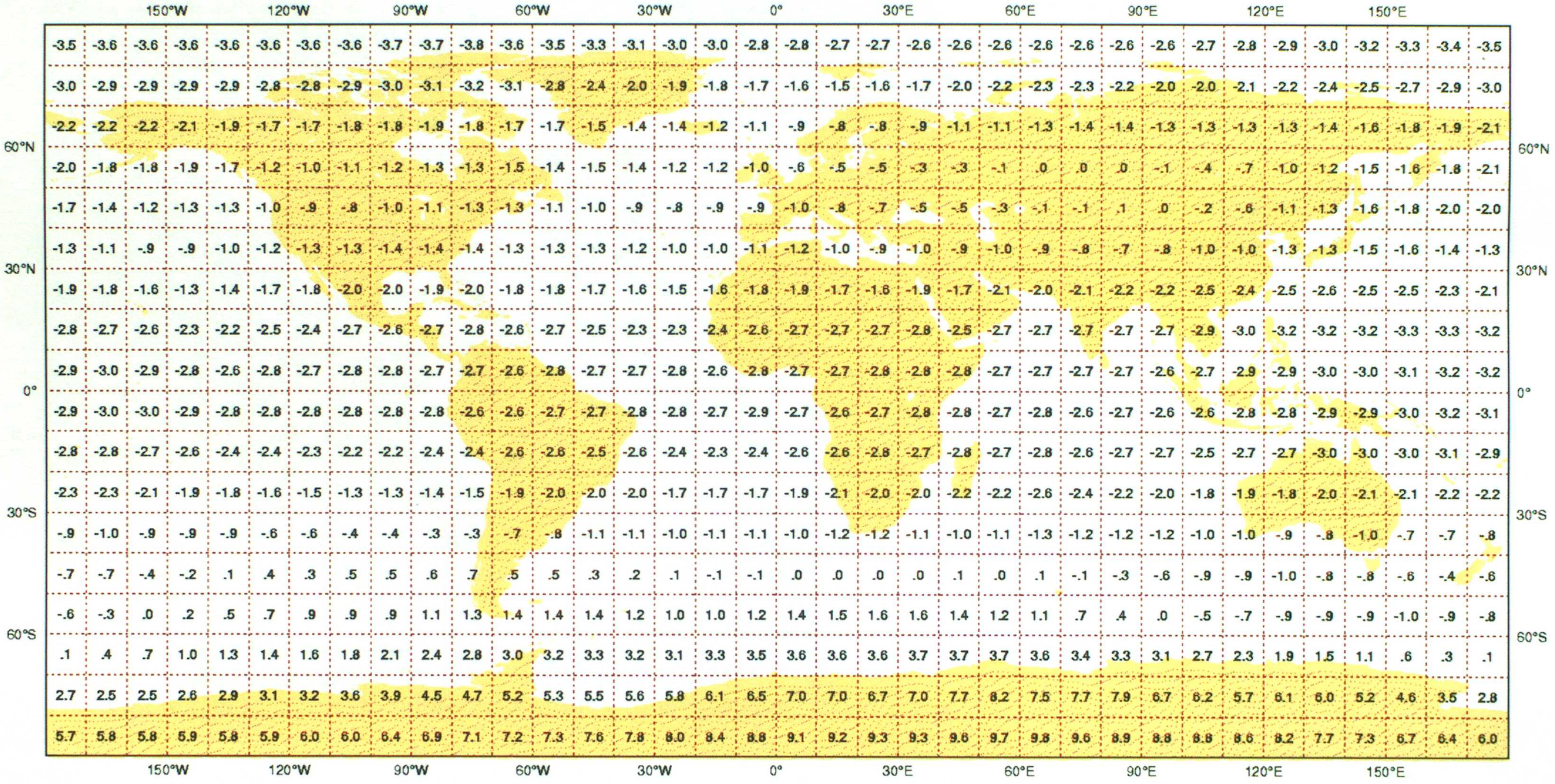
7.6	7.7	7.7	7.7	7.6	7.8	7.9	7.9	8.1	8.9	9.7	8.9	9.2	9.5	9.5	8.0	6.9	6.5	6.1	6.0	6.4	6.6	6.8	6.6	6.7	6.7	6.7	6.9	6.9	6.9	7.1	7.2	7.2	7.2	7.3	7.4
6.2	5.8	5.3	5.0	4.9	5.1	5.4	5.5	5.6	6.3	6.1	6.6	8.1	11.1	11.1	6.7	3.6	2.7	2.3	2.9	3.1	3.3	4.0	5.0	5.8	5.8	6.0	5.8	5.3	4.9	4.6	4.5	5.2	5.8	6.2	6.4
4.2	3.3	2.0	1.7	1.4	1.7	2.0	2.6	2.9	3.0	3.5	3.6	2.5	4.7	3.5	2.3	1.4	.7	.3	.4	.9	2.1	2.7	3.4	4.1	4.4	4.8	5.0	4.4	3.8	3.9	4.1	4.6	4.5	5.1	4.8
1.4	.9	.5	.0	.2	.2	-.3	-.4	-.2	.0	1.2	1.5	.6	.4	.0	.4	.1	.0	-1.1	-1.9	-.6	.8	.3	.2	.2	.7	1.7	2.5	2.4	2.7	2.7	3.1	2.7	2.9	2.6	1.8
.0	-.2	-.4	-1.1	-.8	-.4	-.7	-2.5	-2.6	-2.0	-1.6	-1.4	-1.7	-1.5	-1.5	-1.6	-1.9	-1.6	-1.9	-1.9	-1.6	-1.4	-1.4	-3.4	-4.4	-2.7	-2.5	-3.0	-2.3	-.9	-.4	.5	.4	.4	.1	.1
-3.9	-3.3	-2.9	-3.2	-3.1	-4.7	-6.2	-5.7	-5.7	-4.7	-4.2	-4.2	-4.6	-4.6	-4.4	-4.8	-6.4	-6.3	-5.8	-4.4	-5.1	-5.8	-5.7	-6.5	-6.2	-2.9	-2.3	-2.3	-4.0	-5.2	-5.8	-5.3	-4.4	-3.8	-3.4	-3.6
-9.4	-8.2	-9.3	-8.2	-8.1	-8.9	-8.8	-8.2	-7.1	-8.4	-8.3	-7.6	-7.2	-8.2	-8.7	-9.3	-10.2	-12.1	-11.8	-10.2	-11.5	-12.9	-8.2	-10.5	-12.4	-12.0	-9.1	-5.5	-6.2	-6.2	-6.6	-7.2	-7.5	-8.8	-10.0	-9.9
-11.1	-9.6	-10.7	-9.9	-7.1	-6.0	-7.0	-10.3	-10.1	-10.0	-9.7	-8.9	-10.8	-11.7	-10.4	-8.1	-8.4	-9.2	-11.5	-13.8	-13.2	-9.0	-9.3	-11.6	-11.2	-8.7	-7.3	-7.5	-8.1	-11.3	-12.8	-11.0	-11.3	-15.0	-15.5	-14.6
-4.4	-4.4	-5.0	-4.7	-4.7	-4.7	-5.2	-6.5	-7.1	-4.8	-2.9	-3.4	-4.2	-5.1	-5.2	-4.9	-4.5	-5.1	-4.6	-5.5	-4.2	-3.9	-7.7	-8.1	-6.4	-5.1	-4.1	-4.3	-5.9	-6.1	-6.1	-4.8	-4.0	-4.4	-5.2	-5.5
-5.9	-8.0	-9.0	-10.0	-9.7	-9.8	-10.4	-10.4	-9.9	-7.5	-2.5	-3.2	-4.0	-5.4	-6.5	-8.1	-8.8	-8.5	-6.2	-3.4	-3.9	-5.7	-6.9	-7.5	-6.1	-4.5	-3.8	-3.1	-2.9	-3.6	-4.8	-4.3	-3.5	-3.1	-3.5	-4.0
-4.5	-5.7	-7.6	-8.9	-9.9	-12.0	-12.1	-11.8	-11.0	-11.1	-8.0	-6.6	-8.3	-8.5	-9.4	-12.5	-13.5	-13.4	-12.7	-8.7	-10.1	-11.5	-10.3	-8.5	-5.8	-4.8	-8.3	-8.7	-7.5	-7.2	-9.3	-12.4	-12.1	-10.0	-5.4	-3.5
-6.9	-5.7	-5.7	-4.9	-3.7	-5.1	-7.2	-8.2	-8.0	-9.6	-10.8	-9.6	-7.9	-6.5	-7.3	-9.5	-10.6	-10.7	-12.2	-12.0	-8.3	-10.1	-11.7	-9.4	-8.8	-8.2	-9.7	-11.1	-9.2	-7.5	-7.0	-10.2	-11.8	-12.0	-9.8	-7.4
-6.0	-5.3	-5.7	-6.0	-5.1	-3.2	-5.8	-5.0	-4.7	-5.1	-7.0	-7.7	-6.3	-5.0	-5.3	-5.1	-4.9	-5.3	-5.4	-6.7	-6.2	-5.9	-6.9	-7.0	-6.3	-6.3	-6.3	-5.9	-5.4	-5.7	-5.6	-6.5	-8.5	-7.0	-6.8	-7.3
-2.6	-2.3	-2.4	-2.8	-3.0	-3.3	-3.2	-2.9	-2.4	-2.4	-2.3	-2.7	-2.1	-1.9	-2.0	-2.0	-2.1	-1.9	-1.6	-2.1	-3.0	-2.7	-2.1	-2.3	-2.1	-2.2	-1.9	-1.2	-1.1	-1.0	-1.4	-1.7	-2.1	-2.5	-3.0	-3.4
.2	.6	.4	.0	-.2	-.3	-.3	.0	.4	.5	.8	1.0	1.0	1.1	1.1	1.2	1.1	1.3	1.2	.9	1.0	1.0	.9	1.1	1.4	1.7	1.9	1.9	1.9	1.9	1.8	1.4	1.0	.6	.5	.5
3.0	2.9	2.8	2.5	2.2	2.2	2.3	2.1	2.2	2.4	2.4	3.4	3.3	3.2	2.8	2.8	3.3	3.5	3.5	3.6	3.6	4.1	5.9	8.0	6.9	5.5	7.1	8.4	8.1	7.2	7.3	8.0	6.3	4.9	3.8	3.4
7.8	7.4	7.0	6.8	7.9	7.7	7.5	7.4	7.9	8.0	7.3	8.4	6.7	6.2	5.7	6.8	9.3	12.2	14.0	17.4	18.3	21.1	25.4	28.8	21.9	22.0	27.3	28.1	29.2	27.0	28.4	29.3	26.2	22.0	12.8	8.3
13.4	13.0	12.8	13.6	14.1	14.3	14.8	16.3	18.5	16.9	14.1	12.9	12.8	13.4	14.4	16.8	19.4	22.2	24.5	27.2	28.9	30.8	32.4	31.4	32.0	30.4	29.1	29.9	29.4	29.9	28.1	26.0	23.9	20.6	15.8	14.1

Figure 31. ATOVS SD O-B brightness temperature differences (deg C). APRIL 2005
Channel: HIRS11 (500 - 700 hPa)
NOAA15, using all observations



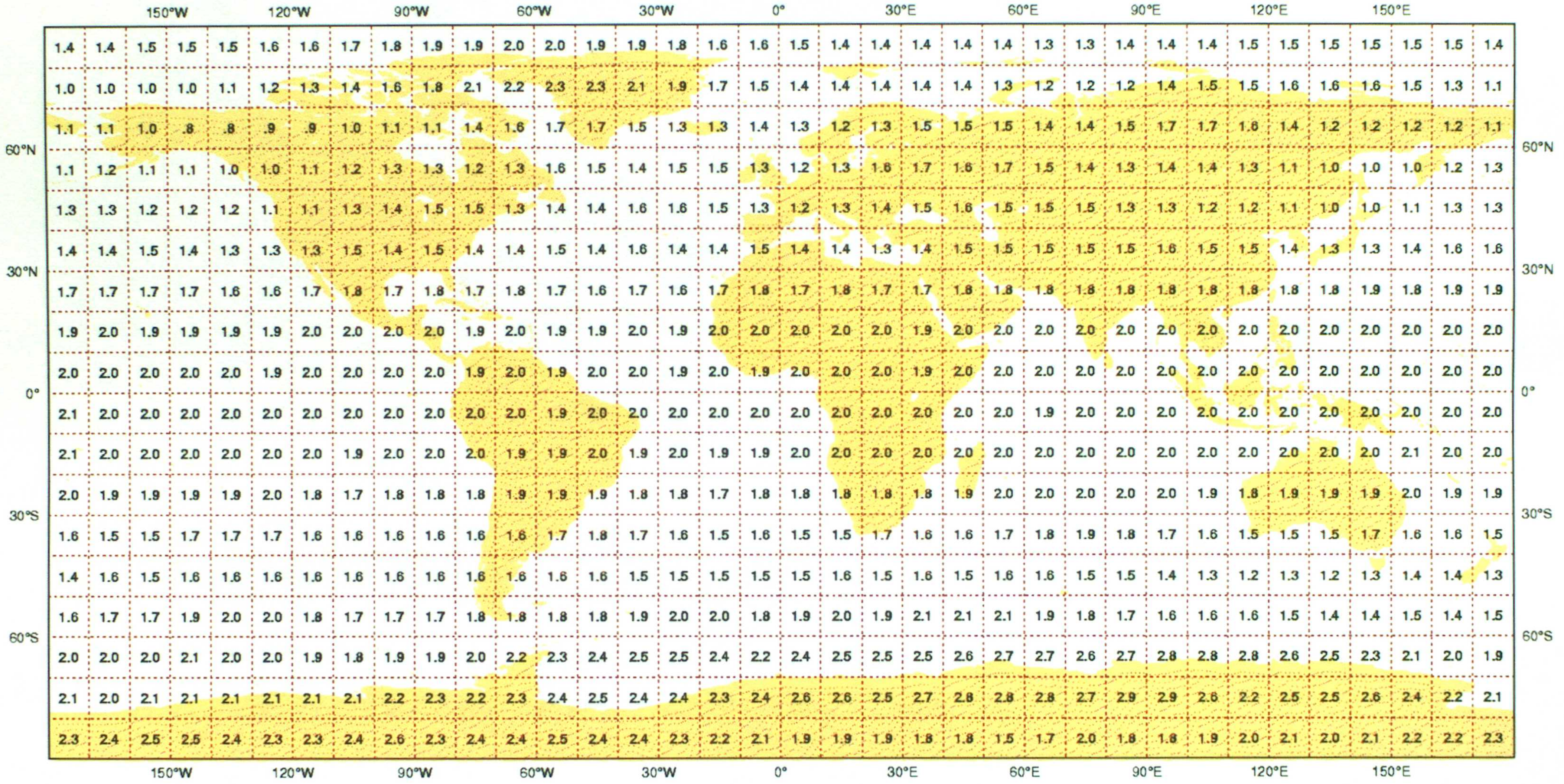
2.6	2.7	2.8	2.9	2.9	2.7	2.4	2.2	2.2	2.2	2.4	2.2	2.6	3.1	3.7	3.4	3.5	3.5	3.4	3.3	3.1	3.1	3.1	3.1	3.2	3.1	3.0	2.7	2.7	2.8	2.8	2.7	2.8	2.7	2.6	2.6
3.2	3.3	3.6	3.5	3.2	2.8	2.3	2.0	2.1	2.5	2.2	2.9	4.3	4.6	4.9	4.6	3.9	3.3	2.9	2.7	2.6	2.4	2.3	2.3	2.5	2.5	2.6	2.6	2.6	2.6	2.8	2.7	2.4	2.2	2.6	3.0
3.6	3.6	4.4	3.9	3.6	3.2	2.8	2.5	2.4	2.5	2.5	2.5	2.6	3.4	3.9	3.2	3.2	3.1	3.3	3.3	3.0	2.6	2.5	2.6	2.9	3.0	2.9	2.8	2.5	2.5	2.3	2.2	2.2	2.3	2.5	3.0
2.9	2.9	3.1	3.3	3.6	4.0	3.2	3.5	3.3	3.3	3.0	3.1	2.9	3.0	3.1	2.8	2.8	3.0	3.9	3.5	3.1	2.7	3.1	3.4	3.7	3.9	3.7	3.4	3.3	2.9	2.7	2.6	2.7	2.6	2.7	2.6
3.0	3.1	3.2	3.6	3.4	3.6	3.1	4.3	4.2	4.2	3.9	3.4	3.5	3.4	3.5	3.5	3.6	3.6	4.0	3.5	3.3	3.3	3.3	4.3	5.6	4.7	4.8	5.0	4.5	3.7	3.6	3.4	3.5	3.1	2.9	3.1
4.4	4.0	3.8	3.5	3.7	4.3	4.6	4.6	4.6	4.6	4.1	4.2	4.7	4.4	4.5	4.6	4.2	4.1	4.6	4.5	4.4	4.8	4.7	4.7	5.5	5.4	5.2	4.0	4.2	5.3	5.2	4.7	4.5	4.1	4.5	4.9
5.1	5.1	4.7	4.1	4.4	4.6	5.7	5.3	4.3	4.6	4.3	4.6	5.2	4.9	4.6	5.2	5.1	5.3	5.9	5.4	6.1	6.1	5.0	5.8	5.9	5.9	5.7	4.7	4.6	5.0	4.7	4.5	4.6	5.3	5.4	5.0
5.5	5.8	6.3	6.1	5.4	4.6	4.6	3.8	3.9	3.6	4.3	4.1	3.7	3.5	3.7	4.3	4.7	5.3	5.6	5.0	5.1	5.4	6.1	6.8	6.4	5.5	4.8	4.4	4.1	4.3	3.7	5.1	5.5	5.1	4.7	4.1
3.9	3.6	3.6	3.4	3.1	3.5	3.7	3.6	3.2	3.4	3.0	3.7	4.1	4.3	4.0	3.6	3.0	3.3	3.4	4.1	3.6	3.8	4.4	4.4	3.8	3.2	2.9	3.0	4.0	4.2	4.5	4.4	4.7	5.0	4.9	4.5
3.8	4.2	4.3	4.3	4.0	3.7	3.3	2.9	2.7	3.4	2.4	2.7	3.8	4.4	4.2	3.6	3.6	3.4	3.7	3.2	3.8	3.9	3.7	3.8	3.8	3.4	3.0	2.9	2.9	4.0	4.9	4.8	3.6	3.1	3.1	3.0
4.3	4.6	4.9	4.5	4.6	4.4	3.9	3.5	3.5	3.7	4.8	4.2	5.0	4.7	4.4	4.2	3.7	4.2	4.0	4.8	4.7	4.5	4.9	4.4	4.4	4.1	5.3	5.4	4.8	4.5	4.7	4.6	5.3	5.9	4.9	3.5
5.4	4.8	4.4	4.3	4.1	4.3	4.4	4.2	4.4	5.5	5.8	4.9	4.5	4.5	4.9	4.8	4.3	4.2	4.1	4.6	4.3	4.7	4.8	5.5	6.4	5.9	4.8	4.2	5.0	4.9	4.9	4.8	4.2	4.3	4.8	5.1
4.7	4.5	4.7	4.9	5.0	4.7	4.7	4.2	4.2	4.5	5.1	5.3	4.6	4.3	5.1	5.3	4.6	4.6	4.3	4.6	4.7	4.7	4.8	5.1	5.1	5.5	4.8	4.4	4.4	4.6	4.8	5.0	5.0	4.3	3.8	3.9
3.8	3.7	3.5	3.9	4.1	4.3	4.1	4.0	3.7	3.8	4.2	3.8	3.8	3.6	3.7	3.8	3.8	3.5	3.6	4.0	4.2	4.0	3.8	3.9	4.0	4.0	4.0	3.9	3.6	3.4	3.8	3.5	3.5	3.7	3.6	4.0
3.1	3.2	3.1	3.3	3.4	3.4	3.4	3.4	3.1	3.0	2.9	2.8	3.0	2.8	2.9	2.9	2.9	2.8	3.0	3.2	2.9	3.1	3.4	3.1	2.9	2.8	2.7	2.6	2.5	2.5	2.4	2.6	2.9	2.8	3.0	3.0
2.6	2.6	2.6	2.6	2.8	2.8	2.7	2.9	2.7	2.6	2.9	3.2	3.2	2.6	2.4	2.4	2.4	2.4	2.6	2.6	2.5	2.6	4.2	6.2	5.0	3.3	5.4	6.5	6.6	5.5	6.1	6.9	5.2	3.8	2.6	2.6
2.3	2.3	2.5	3.2	4.6	4.6	4.3	4.0	4.0	3.9	3.3	3.3	2.9	2.9	2.9	4.0	5.0	5.8	6.4	8.2	8.9	8.2	6.6	4.1	6.5	6.8	5.4	4.2	4.7	5.8	5.2	3.4	4.2	4.6	5.2	2.3
4.9	4.9	4.8	4.7	4.8	4.8	4.7	5.0	5.7	4.1	4.2	4.5	4.8	4.9	5.1	4.9	5.2	5.8	6.4	6.1	5.1	4.8	4.6	4.5	5.0	4.0	3.7	4.0	4.9	4.7	3.8	3.2	3.1	4.3	5.8	5.4

Figure 32. ATOVS MEAN O-B brightness temperature differences (deg C). APRIL 2005
Channel: HIRS4 (400 hPa)
NOAA15, using all observations



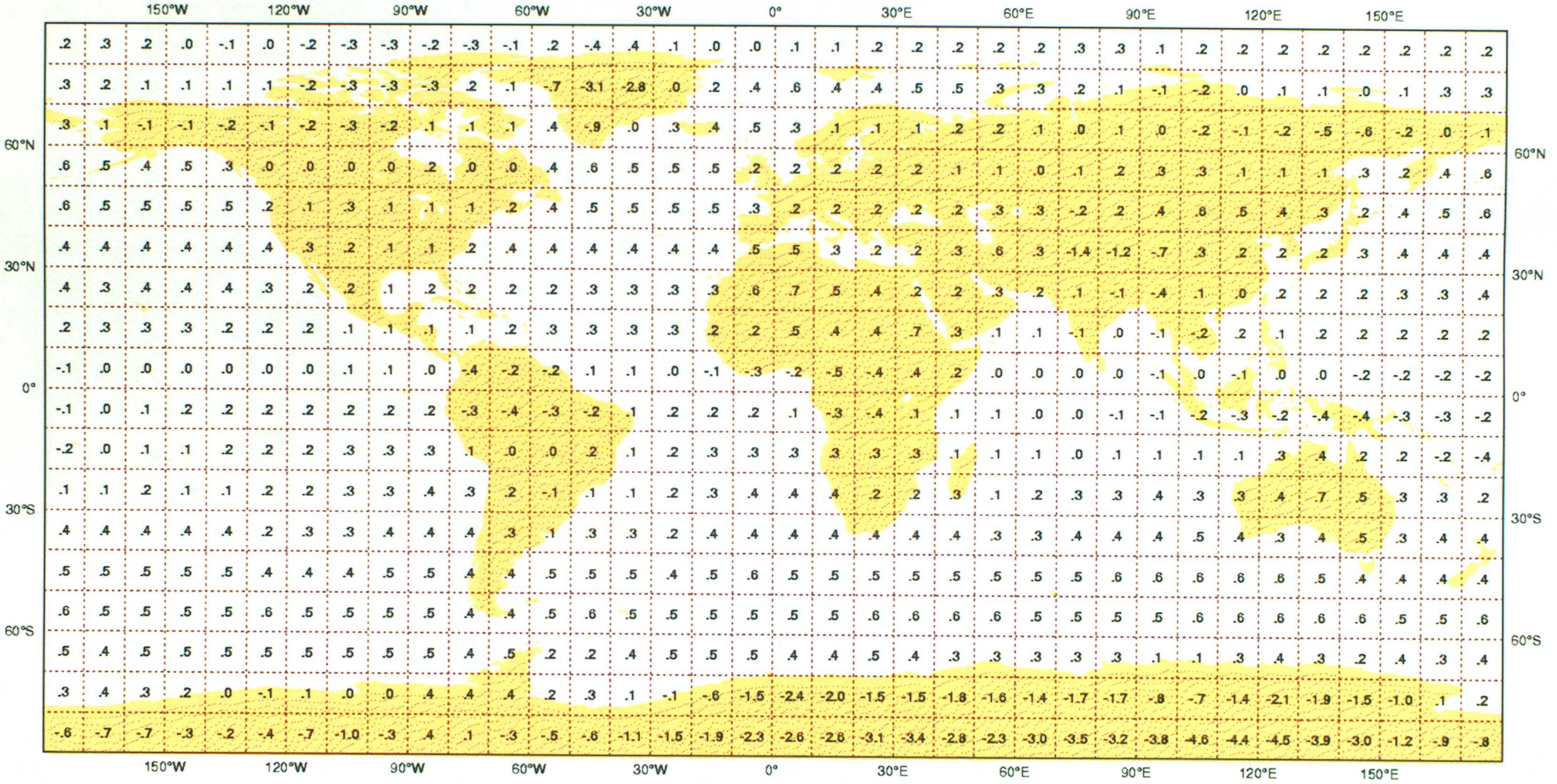
-3.5	-3.6	-3.6	-3.6	-3.6	-3.6	-3.6	-3.6	-3.7	-3.7	-3.8	-3.6	-3.5	-3.3	-3.1	-3.0	-3.0	-2.8	-2.8	-2.7	-2.7	-2.6	-2.6	-2.6	-2.6	-2.6	-2.6	-2.6	-2.7	-2.8	-2.9	-3.0	-3.2	-3.3	-3.4	-3.5
-3.0	-2.9	-2.9	-2.9	-2.9	-2.8	-2.8	-2.9	-3.0	-3.1	-3.2	-3.1	-2.8	-2.4	-2.0	-1.9	-1.8	-1.7	-1.6	-1.5	-1.6	-1.7	-2.0	-2.2	-2.3	-2.3	-2.2	-2.0	-2.0	-2.1	-2.2	-2.4	-2.5	-2.7	-2.9	-3.0
-2.2	-2.2	-2.2	-2.1	-1.9	-1.7	-1.7	-1.8	-1.8	-1.9	-1.8	-1.7	-1.7	-1.5	-1.4	-1.4	-1.2	-1.1	-.9	-.8	-.8	-.9	-1.1	-1.1	-1.3	-1.4	-1.4	-1.3	-1.3	-1.3	-1.3	-1.4	-1.6	-1.8	-1.9	-2.1
-2.0	-1.8	-1.8	-1.9	-1.7	-1.2	-1.0	-1.1	-1.2	-1.3	-1.3	-1.5	-1.4	-1.5	-1.4	-1.2	-1.2	-1.0	-.6	-.5	-.5	-.3	-.3	-.1	.0	.0	.0	-.1	-.4	-.7	-1.0	-1.2	-1.5	-1.6	-1.8	-2.1
-1.7	-1.4	-1.2	-1.3	-1.3	-1.0	-.9	-.8	-1.0	-1.1	-1.3	-1.3	-1.1	-1.0	-.9	-.8	-.9	-.9	-1.0	-.8	-.7	-.5	-.5	-.3	-.1	-.1	.1	.0	-.2	-.6	-1.1	-1.3	-1.6	-1.8	-2.0	-2.0
-1.3	-1.1	-.9	-.9	-1.0	-1.2	-1.3	-1.3	-1.4	-1.4	-1.4	-1.3	-1.3	-1.3	-1.2	-1.0	-1.0	-1.1	-1.2	-1.0	-.9	-1.0	-.9	-1.0	-.9	-.8	-.7	-.8	-1.0	-1.0	-1.3	-1.3	-1.5	-1.6	-1.4	-1.3
-1.9	-1.8	-1.6	-1.3	-1.4	-1.7	-1.8	-2.0	-2.0	-1.9	-2.0	-1.8	-1.8	-1.7	-1.6	-1.5	-1.6	-1.8	-1.9	-1.7	-1.6	-1.9	-1.7	-2.1	-2.0	-2.1	-2.2	-2.2	-2.5	-2.4	-2.5	-2.6	-2.5	-2.5	-2.3	-2.1
-2.8	-2.7	-2.6	-2.3	-2.2	-2.5	-2.4	-2.7	-2.6	-2.7	-2.8	-2.6	-2.7	-2.5	-2.3	-2.3	-2.4	-2.6	-2.7	-2.7	-2.7	-2.8	-2.5	-2.7	-2.7	-2.7	-2.7	-2.7	-2.9	-3.0	-3.2	-3.2	-3.2	-3.3	-3.3	-3.2
-2.9	-3.0	-2.9	-2.8	-2.6	-2.8	-2.7	-2.8	-2.8	-2.7	-2.7	-2.6	-2.8	-2.7	-2.7	-2.8	-2.6	-2.8	-2.7	-2.7	-2.8	-2.8	-2.8	-2.7	-2.7	-2.7	-2.7	-2.6	-2.7	-2.9	-2.9	-3.0	-3.0	-3.1	-3.2	-3.2
-2.9	-3.0	-3.0	-2.9	-2.8	-2.8	-2.8	-2.8	-2.8	-2.8	-2.6	-2.6	-2.7	-2.7	-2.8	-2.8	-2.7	-2.9	-2.7	-2.6	-2.7	-2.8	-2.8	-2.7	-2.8	-2.6	-2.7	-2.6	-2.6	-2.8	-2.8	-2.9	-2.9	-3.0	-3.2	-3.1
-2.8	-2.8	-2.7	-2.6	-2.4	-2.4	-2.3	-2.2	-2.2	-2.4	-2.4	-2.6	-2.6	-2.5	-2.6	-2.4	-2.3	-2.4	-2.6	-2.6	-2.8	-2.7	-2.8	-2.7	-2.8	-2.6	-2.7	-2.7	-2.5	-2.7	-2.7	-3.0	-3.0	-3.0	-3.1	-2.9
-2.3	-2.3	-2.1	-1.9	-1.8	-1.6	-1.5	-1.3	-1.3	-1.4	-1.5	-1.9	-2.0	-2.0	-2.0	-1.7	-1.7	-1.7	-1.9	-2.1	-2.0	-2.0	-2.2	-2.2	-2.6	-2.4	-2.2	-2.0	-1.8	-1.9	-1.8	-2.0	-2.1	-2.1	-2.2	-2.2
-.9	-1.0	-.9	-.9	-.9	-.6	-.6	-.4	-.4	-.3	-.3	-.7	-.8	-1.1	-1.1	-1.0	-1.1	-1.1	-1.0	-1.2	-1.2	-1.1	-1.0	-1.1	-1.3	-1.2	-1.2	-1.2	-1.0	-1.0	-.9	-.8	-1.0	-.7	-.7	-.8
-.7	-.7	-.4	-.2	.1	.4	.3	.5	.5	.6	.7	.5	.5	.3	.2	.1	-.1	-.1	.0	.0	.0	.0	.1	.0	.1	-.1	-.3	-.6	-.9	-.9	-1.0	-.8	-.8	-.6	-.4	-.6
-.6	-.3	.0	.2	.5	.7	.9	.9	.9	1.1	1.3	1.4	1.4	1.4	1.2	1.0	1.0	1.2	1.4	1.5	1.6	1.6	1.4	1.2	1.1	.7	.4	.0	-.5	-.7	-.9	-.9	-.9	-1.0	-.9	-.8
.1	.4	.7	1.0	1.3	1.4	1.6	1.8	2.1	2.4	2.8	3.0	3.2	3.3	3.2	3.1	3.3	3.5	3.6	3.6	3.6	3.7	3.7	3.7	3.6	3.4	3.3	3.1	2.7	2.3	1.9	1.5	1.1	.6	.3	.1
2.7	2.5	2.5	2.6	2.9	3.1	3.2	3.6	3.9	4.5	4.7	5.2	5.3	5.5	5.6	5.8	6.1	6.5	7.0	7.0	6.7	7.0	7.7	8.2	7.5	7.7	7.9	6.7	6.2	5.7	6.1	6.0	5.2	4.6	3.5	2.8
5.7	5.8	5.8	5.9	5.8	5.9	6.0	6.0	6.4	6.9	7.1	7.2	7.3	7.6	7.8	8.0	8.4	8.8	9.1	9.2	9.3	9.3	9.6	9.7	9.8	9.6	8.9	8.8	8.8	8.6	8.2	7.7	7.3	6.7	6.4	6.0

Figure 33. ATOVS SD O-B brightness temperature differences (deg C). APRIL 2005
Channel: HIRS4 (400 hPa)
NOAA15, using all observations



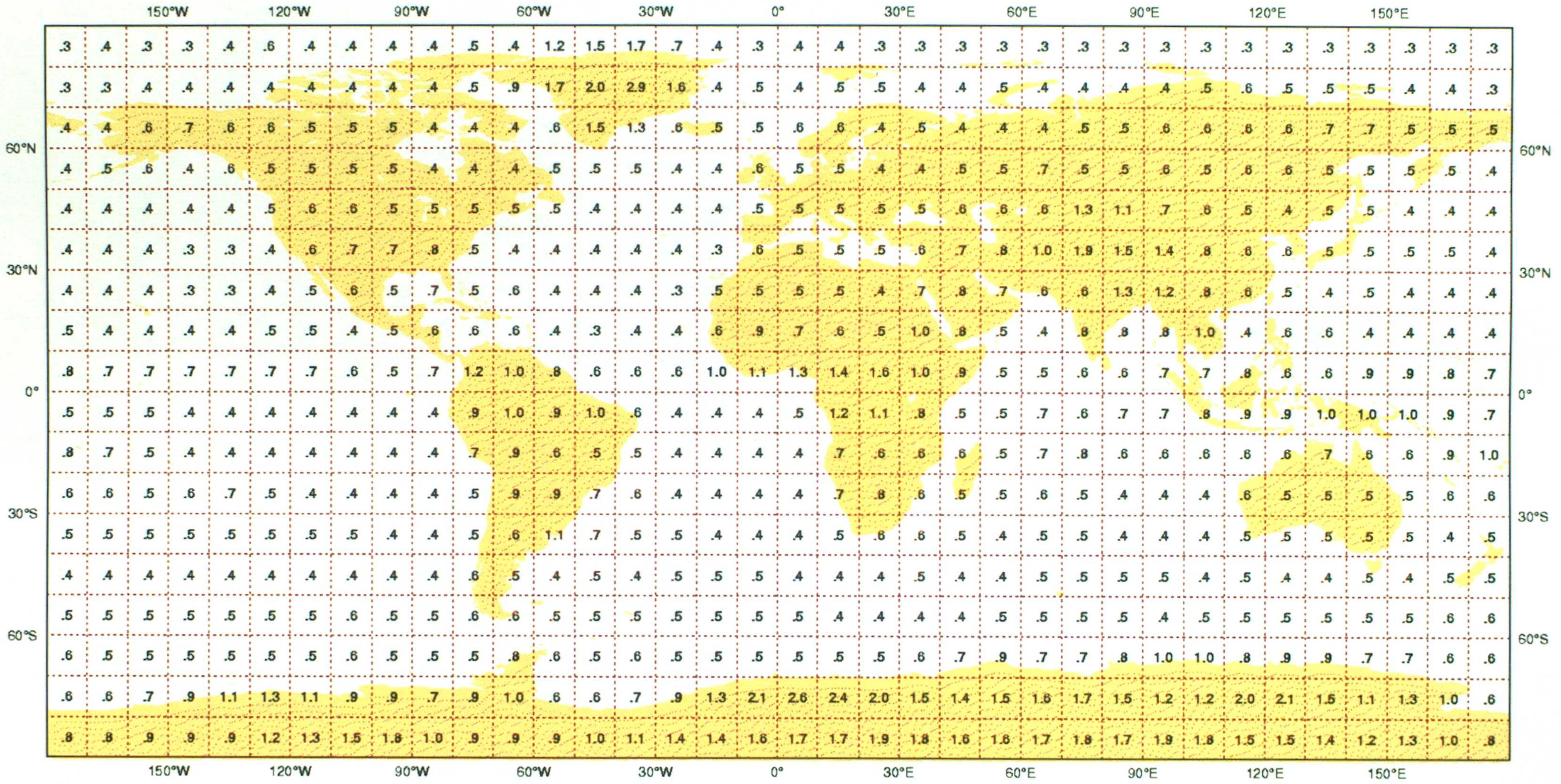
1.4	1.4	1.5	1.5	1.5	1.6	1.6	1.7	1.8	1.9	1.9	2.0	2.0	1.9	1.9	1.8	1.6	1.6	1.5	1.4	1.4	1.4	1.4	1.4	1.3	1.3	1.4	1.4	1.4	1.5	1.5	1.5	1.5	1.5	1.5	1.4
1.0	1.0	1.0	1.0	1.1	1.2	1.3	1.4	1.6	1.8	2.1	2.2	2.3	2.3	2.1	1.9	1.7	1.5	1.4	1.4	1.4	1.4	1.4	1.3	1.2	1.2	1.2	1.4	1.5	1.5	1.6	1.6	1.6	1.5	1.3	1.1
1.1	1.1	1.0	.8	.8	.9	.9	1.0	1.1	1.1	1.4	1.6	1.7	1.7	1.5	1.3	1.3	1.4	1.3	1.2	1.3	1.5	1.5	1.5	1.4	1.4	1.5	1.7	1.7	1.6	1.4	1.2	1.2	1.2	1.2	1.1
1.1	1.2	1.1	1.1	1.0	1.0	1.1	1.2	1.3	1.3	1.2	1.3	1.6	1.5	1.4	1.5	1.5	1.3	1.2	1.3	1.6	1.7	1.6	1.7	1.5	1.4	1.3	1.4	1.4	1.3	1.1	1.0	1.0	1.0	1.2	1.3
1.3	1.3	1.2	1.2	1.2	1.1	1.1	1.3	1.4	1.5	1.5	1.3	1.4	1.4	1.6	1.6	1.5	1.3	1.2	1.3	1.4	1.5	1.6	1.5	1.5	1.5	1.3	1.3	1.2	1.2	1.1	1.0	1.0	1.1	1.3	1.3
1.4	1.4	1.5	1.4	1.3	1.3	1.3	1.5	1.4	1.5	1.4	1.4	1.5	1.4	1.6	1.4	1.4	1.5	1.4	1.4	1.3	1.4	1.5	1.5	1.5	1.5	1.5	1.6	1.5	1.5	1.4	1.3	1.3	1.4	1.6	1.6
1.7	1.7	1.7	1.7	1.6	1.6	1.7	1.8	1.7	1.8	1.7	1.8	1.7	1.6	1.7	1.6	1.7	1.8	1.7	1.8	1.7	1.7	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.9	1.8	1.9	1.9
1.9	2.0	1.9	1.9	1.9	1.9	2.0	2.0	2.0	2.0	1.9	2.0	1.9	1.9	2.0	1.9	2.0	2.0	2.0	2.0	2.0	1.9	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
2.0	2.0	2.0	2.0	2.0	1.9	2.0	2.0	2.0	2.0	1.9	2.0	1.9	2.0	2.0	1.9	2.0	1.9	2.0	2.0	2.0	1.9	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	1.9	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	1.9	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
2.1	2.0	2.0	2.0	2.0	2.0	2.0	1.9	2.0	2.0	2.0	1.9	1.9	2.0	1.9	2.0	1.9	1.9	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.0
2.0	1.9	1.9	1.9	1.9	2.0	1.8	1.7	1.8	1.8	1.8	1.9	1.9	1.9	1.8	1.8	1.7	1.8	1.8	1.8	1.8	1.8	1.9	2.0	2.0	2.0	2.0	2.0	1.9	1.8	1.9	1.9	1.9	2.0	1.9	1.9
1.6	1.5	1.5	1.7	1.7	1.7	1.6	1.6	1.6	1.6	1.6	1.6	1.7	1.8	1.7	1.6	1.5	1.6	1.5	1.5	1.7	1.6	1.6	1.7	1.8	1.9	1.8	1.7	1.6	1.5	1.5	1.5	1.7	1.6	1.6	1.5
1.4	1.6	1.5	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.5	1.5	1.5	1.5	1.5	1.6	1.5	1.6	1.5	1.6	1.6	1.5	1.5	1.4	1.3	1.2	1.3	1.2	1.3	1.4	1.4	1.3
1.6	1.7	1.7	1.9	2.0	2.0	1.8	1.7	1.7	1.7	1.8	1.8	1.8	1.8	1.9	2.0	2.0	1.8	1.9	2.0	1.9	2.1	2.1	2.1	1.9	1.8	1.7	1.6	1.6	1.6	1.5	1.4	1.4	1.5	1.4	1.5
2.0	2.0	2.0	2.1	2.0	2.0	1.9	1.8	1.9	1.9	2.0	2.2	2.3	2.4	2.5	2.5	2.4	2.2	2.4	2.5	2.5	2.5	2.6	2.7	2.7	2.6	2.7	2.8	2.8	2.8	2.6	2.5	2.3	2.1	2.0	1.9
2.1	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.3	2.2	2.3	2.4	2.5	2.4	2.4	2.3	2.4	2.6	2.6	2.5	2.7	2.8	2.8	2.8	2.7	2.9	2.9	2.6	2.2	2.5	2.5	2.6	2.4	2.2	2.1
2.3	2.4	2.5	2.5	2.4	2.3	2.3	2.4	2.6	2.3	2.4	2.4	2.5	2.4	2.4	2.3	2.2	2.1	1.9	1.9	1.9	1.8	1.8	1.5	1.7	2.0	1.8	1.8	1.9	2.0	2.1	2.0	2.1	2.2	2.2	2.3

Figure 34. ATOVS MEAN O-B brightness temperature differences (deg C). APRIL 2005
Channel: AMSUA-5 (700 hPa)
NOAA15, using all observations



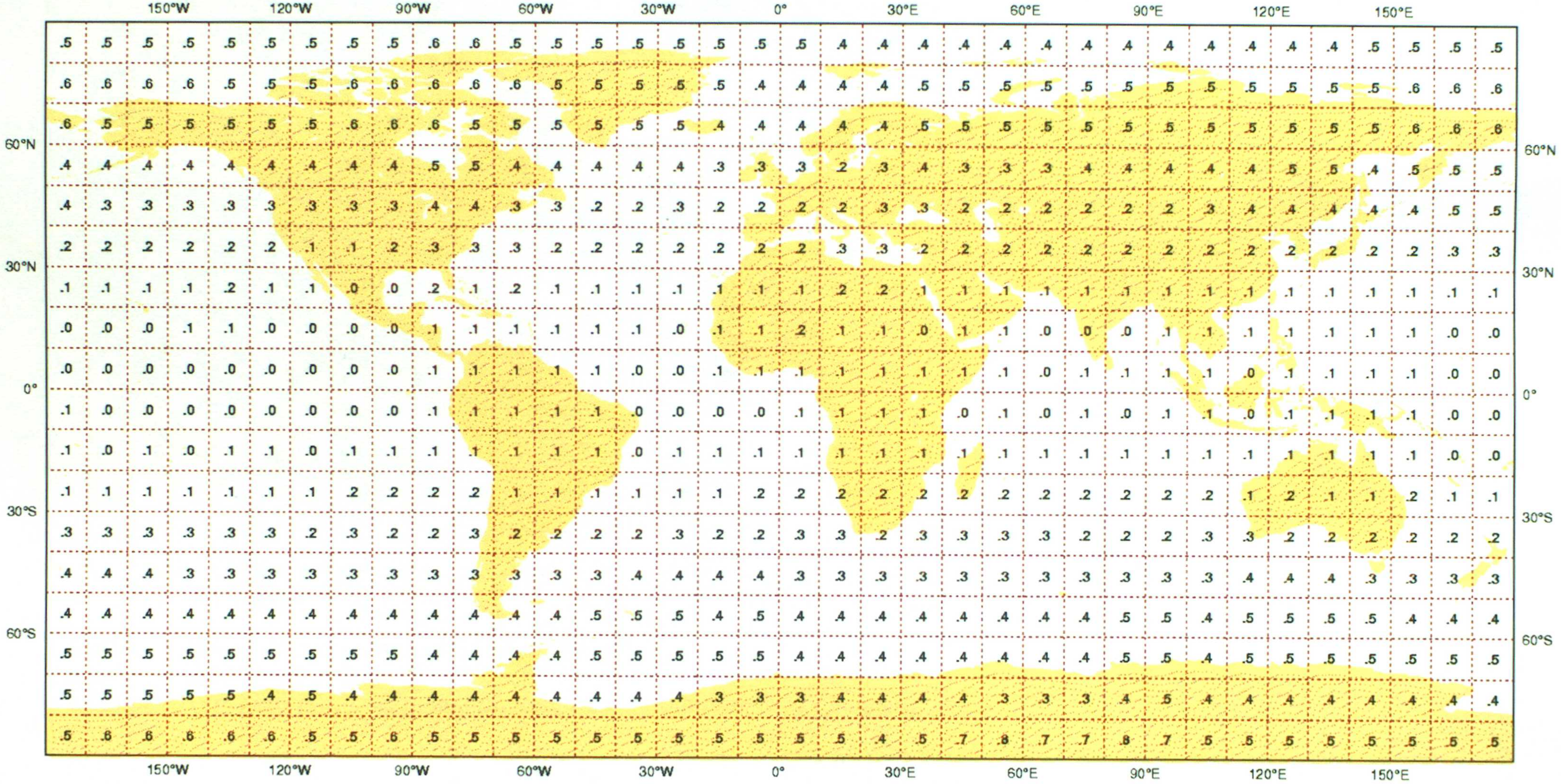
.2	.3	.2	.0	-.1	.0	-.2	-.3	-.3	-.2	-.3	-.1	.2	-.4	.4	.1	.0	.0	.1	.1	.2	.2	.2	.2	.2	.3	.3	.1	.2	.2	.2	.2	.2	.2	.2	.2
.3	.2	.1	.1	.1	.1	-.2	-.3	-.3	-.3	.2	.1	-.7	-3.1	-2.8	.0	.2	.4	.6	.4	.4	.5	.5	.3	.3	.2	.1	-.1	-.2	.0	.1	.1	.0	.1	.3	.3
.3	.1	-.1	-.1	-.2	-.1	-.2	-.3	-.2	.1	.1	.1	.4	-.9	.0	.3	.4	.5	.3	.1	.1	.1	.2	.2	.1	.0	.1	.0	-.2	-.1	-.2	-.5	-.6	-.2	.0	.1
.6	.5	.4	.5	.3	.0	.0	.0	.0	.2	.0	.0	.4	.6	.5	.5	.5	.2	.2	.2	.2	.2	.1	.1	.0	.1	.2	.3	.3	.1	.1	.1	.3	.2	.4	.6
.6	.5	.5	.5	.5	.2	.1	.3	.1	.1	.1	.2	.4	.5	.5	.5	.5	.3	.2	.2	.2	.2	.2	.3	.3	-.2	.2	.4	.6	.5	.4	.3	.2	.4	.5	.6
.4	.4	.4	.4	.4	.4	.3	.2	.1	.1	.2	.4	.4	.4	.4	.4	.4	.5	.5	.3	.2	.2	.3	.6	.3	-1.4	-1.2	-.7	.3	.2	.2	.2	.3	.4	.4	.4
.4	.3	.4	.4	.4	.3	.2	.2	.1	.2	.2	.2	.2	.3	.3	.3	.3	.6	.7	.5	.4	.2	.2	.3	.2	.1	-.1	-.4	.1	.0	.2	.2	.2	.3	.3	.4
.2	.3	.3	.3	.2	.2	.2	.1	.1	.1	.1	.2	.3	.3	.3	.3	.2	.2	.5	.4	.4	.7	.3	.1	.1	-.1	.0	-.1	-.2	.2	.1	.2	.2	.2	.2	.2
-.1	.0	.0	.0	.0	.0	.0	.1	.1	.0	-.4	-.2	-.2	.1	.1	.0	-.1	-.3	-.2	-.5	-.4	.4	.2	.0	.0	.0	.0	-.1	.0	-.1	.0	.0	-.2	-.2	-.2	-.2
-.1	.0	.1	.2	.2	.2	.2	.2	.2	.2	-.3	-.4	-.3	-.2	.1	.2	.2	.2	.1	-.3	-.4	.1	.1	.1	.0	.0	-.1	-.1	-.2	-.3	-.2	-.4	-.4	-.3	-.3	-.2
-.2	.0	.1	.1	.2	.2	.2	.3	.3	.3	.1	.0	.0	.2	.1	.2	.3	.3	.3	.3	.3	.3	.1	.1	.1	.0	.1	.1	.1	.1	.3	.4	.2	.2	-.2	-.4
.1	.1	.2	.1	.1	.2	.2	.3	.3	.4	.3	.2	-.1	.1	.1	.2	.3	.4	.4	.4	.2	.2	.3	.1	.2	.3	.3	.4	.3	.3	.4	.7	.5	.3	.3	.2
.4	.4	.4	.4	.4	.2	.3	.3	.4	.4	.4	.3	.1	.3	.3	.2	.4	.4	.4	.4	.4	.4	.4	.3	.3	.4	.4	.4	.5	.4	.3	.4	.5	.3	.4	.4
.5	.5	.5	.5	.5	.4	.4	.4	.5	.5	.4	.4	.5	.5	.5	.4	.5	.6	.5	.5	.5	.5	.5	.5	.5	.5	.6	.6	.6	.6	.6	.5	.4	.4	.4	.4
.6	.5	.5	.5	.5	.6	.5	.5	.5	.5	.4	.4	.5	.6	.5	.5	.5	.5	.5	.6	.6	.6	.6	.5	.5	.5	.5	.6	.6	.6	.6	.6	.5	.5	.6
.5	.4	.5	.5	.5	.5	.5	.5	.5	.5	.4	.5	.2	.2	.4	.5	.5	.5	.4	.4	.5	.4	.3	.3	.3	.3	.3	.1	.1	.3	.4	.3	.2	.4	.3	.4
.3	.4	.3	.2	.0	-.1	.1	.0	.0	.4	.4	.4	.2	.3	.1	-.1	-.6	-1.5	-2.4	-2.0	-1.5	-1.5	-1.8	-1.6	-1.4	-1.7	-1.7	-.8	-.7	-1.4	-2.1	-1.9	-1.5	-1.0	.1	.2
-.6	-.7	-.7	-.3	-.2	-.4	-.7	-1.0	-.3	.4	.1	-.3	-.5	-.6	-1.1	-1.5	-1.9	-2.3	-2.6	-2.6	-3.1	-3.4	-2.8	-2.3	-3.0	-3.5	-3.2	-3.8	-4.6	-4.4	-4.5	-3.9	-3.0	-1.2	-.9	-.8

Figure 35. ATOVS SD O-B brightness temperature differences (deg C). APRIL 2005
Channel: AMSUA-5 (700 hPa)
NOAA15, using all observations



.3	.4	.3	.3	.4	.6	.4	.4	.4	.4	.5	.4	1.2	1.5	1.7	.7	.4	.3	.4	.4	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3
.3	.3	.4	.4	.4	.4	.4	.4	.4	.4	.5	.9	1.7	2.0	2.9	1.6	.4	.5	.4	.5	.5	.4	.4	.5	.4	.4	.4	.4	.5	.6	.5	.5	.5	.4	.4	.3
.4	.4	.6	.7	.6	.6	.5	.5	.5	.4	.4	.4	.6	1.5	1.3	.6	.5	.5	.6	.6	.4	.5	.4	.4	.4	.5	.5	.6	.6	.6	.6	.7	.7	.5	.5	.5
.4	.5	.6	.4	.6	.5	.5	.5	.5	.4	.4	.4	.5	.5	.5	.4	.4	.6	.5	.5	.4	.4	.5	.5	.7	.5	.5	.6	.5	.6	.6	.5	.5	.5	.5	.4
.4	.4	.4	.4	.4	.5	.6	.6	.5	.5	.5	.5	.5	.4	.4	.4	.4	.5	.5	.5	.5	.5	.6	.6	.6	1.3	1.1	.7	.6	.5	.4	.5	.5	.4	.4	.4
.4	.4	.4	.3	.3	.4	.6	.7	.7	.8	.5	.4	.4	.4	.4	.4	.3	.6	.5	.5	.5	.6	.7	.8	1.0	1.9	1.5	1.4	.8	.6	.6	.5	.5	.5	.5	.4
.4	.4	.4	.3	.3	.4	.5	.6	.5	.7	.5	.6	.4	.4	.4	.3	.5	.5	.5	.5	.4	.7	.8	.7	.6	.6	1.3	1.2	.8	.6	.5	.4	.5	.4	.4	.4
.5	.4	.4	.4	.4	.5	.5	.4	.5	.6	.6	.6	.4	.3	.4	.4	.6	.9	.7	.6	.5	1.0	.8	.5	.4	.8	.8	.8	1.0	.4	.6	.6	.4	.4	.4	.4
.8	.7	.7	.7	.7	.7	.7	.6	.5	.7	1.2	1.0	.8	.6	.6	.6	1.0	1.1	1.3	1.4	1.6	1.0	.9	.5	.5	.6	.6	.7	.7	.8	.6	.6	.9	.9	.8	.7
.5	.5	.5	.4	.4	.4	.4	.4	.4	.4	.9	1.0	.9	1.0	.6	.4	.4	.4	.5	1.2	1.1	.8	.5	.5	.7	.6	.7	.7	.8	.9	.9	1.0	1.0	1.0	.9	.7
.8	.7	.5	.4	.4	.4	.4	.4	.4	.4	.7	.9	.6	.5	.5	.4	.4	.4	.4	.7	.6	.6	.6	.5	.7	.8	.6	.6	.6	.6	.6	.7	.6	.6	.9	1.0
.6	.6	.5	.6	.7	.5	.4	.4	.4	.4	.5	.9	.9	.7	.6	.4	.4	.4	.4	.7	.8	.6	.5	.5	.6	.5	.4	.4	.4	.6	.5	.5	.5	.5	.6	.6
.5	.5	.5	.5	.5	.5	.5	.5	.4	.4	.5	.6	1.1	.7	.5	.5	.4	.4	.4	.5	.6	.6	.5	.4	.5	.5	.4	.4	.4	.5	.5	.5	.5	.5	.4	.5
.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.6	.5	.4	.5	.4	.5	.5	.5	.4	.4	.4	.5	.4	.4	.5	.5	.5	.5	.4	.5	.4	.4	.5	.4	.5	.5
.5	.5	.5	.5	.5	.5	.5	.6	.5	.5	.6	.6	.5	.5	.5	.5	.5	.5	.5	.4	.4	.4	.4	.5	.5	.5	.5	.4	.5	.5	.5	.5	.5	.5	.6	.6
.6	.5	.5	.5	.5	.5	.5	.6	.5	.5	.5	.8	.6	.5	.6	.5	.5	.5	.5	.5	.5	.6	.7	.9	.7	.7	.8	1.0	1.0	.8	.9	.9	.7	.7	.6	.6
.6	.6	.7	.9	1.1	1.3	1.1	.9	.9	.7	.9	1.0	.6	.6	.7	.9	1.3	2.1	2.6	2.4	2.0	1.5	1.4	1.5	1.6	1.7	1.5	1.2	1.2	2.0	2.1	1.5	1.1	1.3	1.0	.6
.8	.8	.9	.9	.9	1.2	1.3	1.5	1.8	1.0	.9	.9	.9	1.0	1.1	1.4	1.4	1.6	1.7	1.7	1.9	1.8	1.6	1.6	1.7	1.8	1.7	1.9	1.8	1.5	1.5	1.4	1.2	1.3	1.0	.8

Figure 36. ATOVS MEAN O-B brightness temperature differences (deg C). APRIL 2005
Channel: AMSUA-7 (300 hPa)
NOAA15, using all observations



.5	.5	.5	.5	.5	.5	.5	.5	.5	.6	.6	.5	.5	.5	.5	.5	.5	.5	.5	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.5	.5	.5	.5
.6	.6	.6	.6	.5	.5	.5	.6	.6	.6	.6	.6	.5	.5	.5	.5	.5	.4	.4	.4	.4	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.6	.6	.6
.6	.5	.5	.5	.5	.5	.5	.6	.6	.6	.5	.5	.5	.5	.5	.5	.4	.4	.4	.4	.4	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.6	.6	.6
.4	.4	.4	.4	.4	.4	.4	.4	.4	.5	.5	.4	.4	.4	.4	.4	.3	.3	.3	.2	.3	.4	.3	.3	.3	.4	.4	.4	.4	.4	.5	.5	.4	.5	.5	.5
.4	.3	.3	.3	.3	.3	.3	.3	.3	.4	.4	.3	.3	.2	.2	.3	.2	.2	.2	.2	.3	.3	.2	.2	.2	.2	.2	.2	.3	.4	.4	.4	.4	.4	.5	.5
.2	.2	.2	.2	.2	.2	.1	.1	.2	.3	.3	.3	.2	.2	.2	.2	.2	.2	.2	.3	.3	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.3	.3
.1	.1	.1	.1	.2	.1	.1	.0	.0	.2	.1	.2	.1	.1	.1	.1	.1	.1	.1	.2	.2	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1
.0	.0	.0	.1	.1	.0	.0	.0	.0	.1	.1	.1	.1	.1	.1	.0	.1	.1	.2	.1	.1	.0	.1	.1	.0	.0	.0	.1	.1	.1	.1	.1	.1	.1	.0	.0
.0	.0	.0	.0	.0	.0	.0	.0	.0	.1	.1	.1	.1	.1	.0	.0	.1	.1	.1	.1	.1	.1	.1	.1	.0	.1	.1	.1	.1	.0	.1	.1	.1	.1	.0	.0
.1	.0	.0	.0	.0	.0	.0	.0	.0	.1	.1	.1	.1	.1	.0	.0	.0	.0	.1	.1	.1	.1	.0	.1	.0	.1	.0	.1	.1	.0	.1	.1	.1	.1	.0	.0
.1	.0	.1	.0	.1	.1	.0	.1	.1	.1	.1	.1	.1	.1	.0	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.0	.0
.1	.1	.1	.1	.1	.1	.1	.2	.2	.2	.2	.1	.1	.1	.1	.1	.1	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.1	.2	.1	.1	.2	.1	.1
.3	.3	.3	.3	.3	.3	.2	.3	.2	.2	.3	.2	.2	.2	.2	.3	.2	.2	.3	.3	.2	.3	.3	.3	.3	.2	.2	.2	.3	.3	.2	.2	.2	.2	.2	.2
.4	.4	.4	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.4	.4	.4	.4	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.4	.4	.4	.3	.3	.3	.3
.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.5	.5	.5	.4	.5	.4	.4	.4	.4	.4	.4	.4	.4	.5	.5	.4	.5	.5	.5	.5	.4	.4	.4
.5	.5	.5	.5	.5	.5	.5	.5	.5	.4	.4	.4	.4	.5	.5	.5	.5	.5	.4	.4	.4	.4	.4	.4	.4	.4	.5	.5	.4	.5	.5	.5	.5	.5	.5	.5
.5	.5	.5	.5	.5	.4	.5	.4	.4	.4	.4	.4	.4	.4	.4	.4	.3	.3	.3	.4	.4	.4	.4	.3	.3	.3	.4	.5	.4	.4	.4	.4	.4	.4	.4	.4
.5	.6	.6	.6	.6	.6	.5	.5	.6	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.4	.5	.7	.8	.7	.7	.8	.7	.5	.5	.5	.5	.5	.5	.5	.5

Figure 37. ATOVS SD O-B brightness temperature differences (deg C). APRIL 2005
Channel: AMSUA-7 (300 hPa)
NOAA15, using all observations

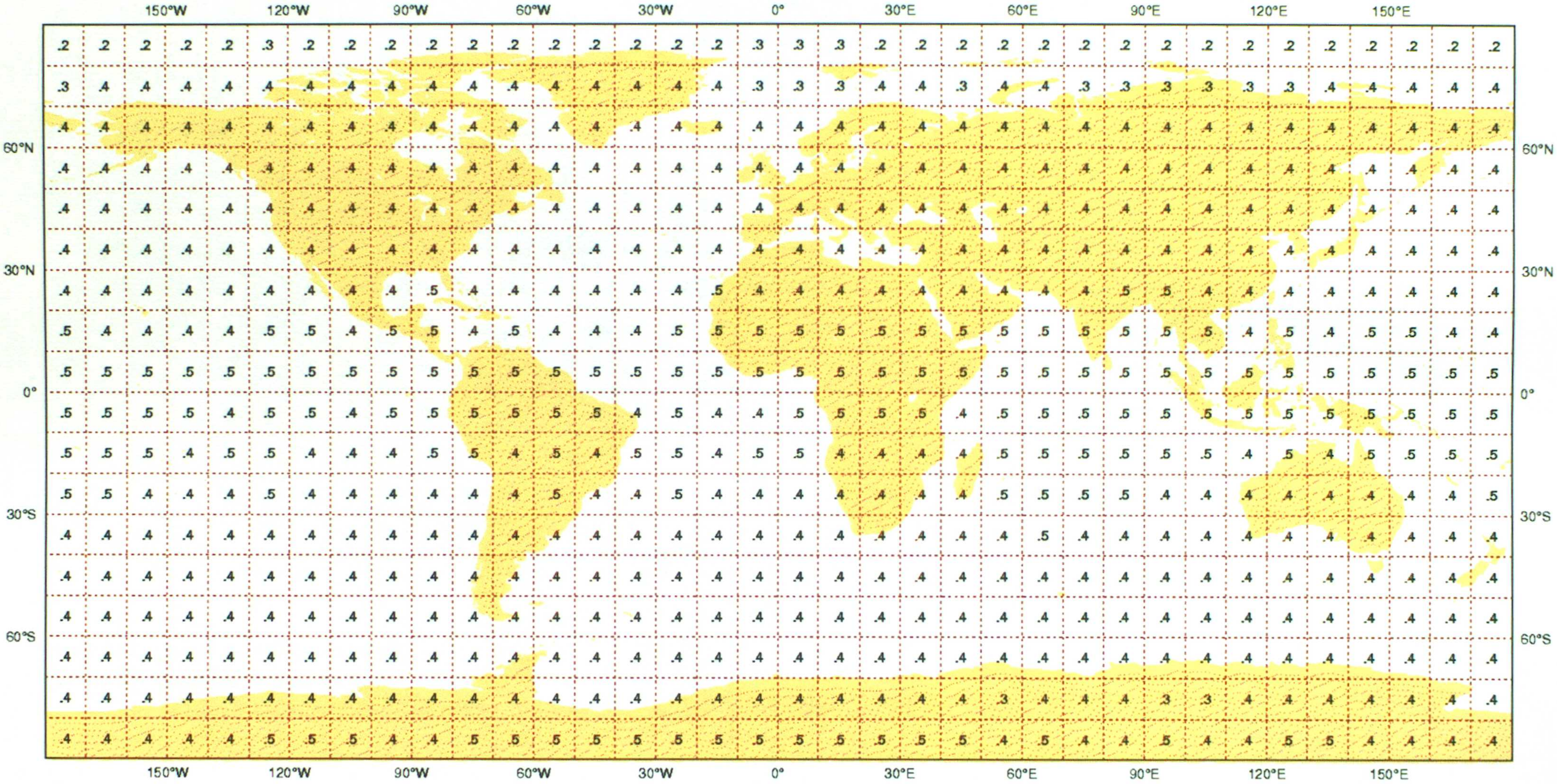
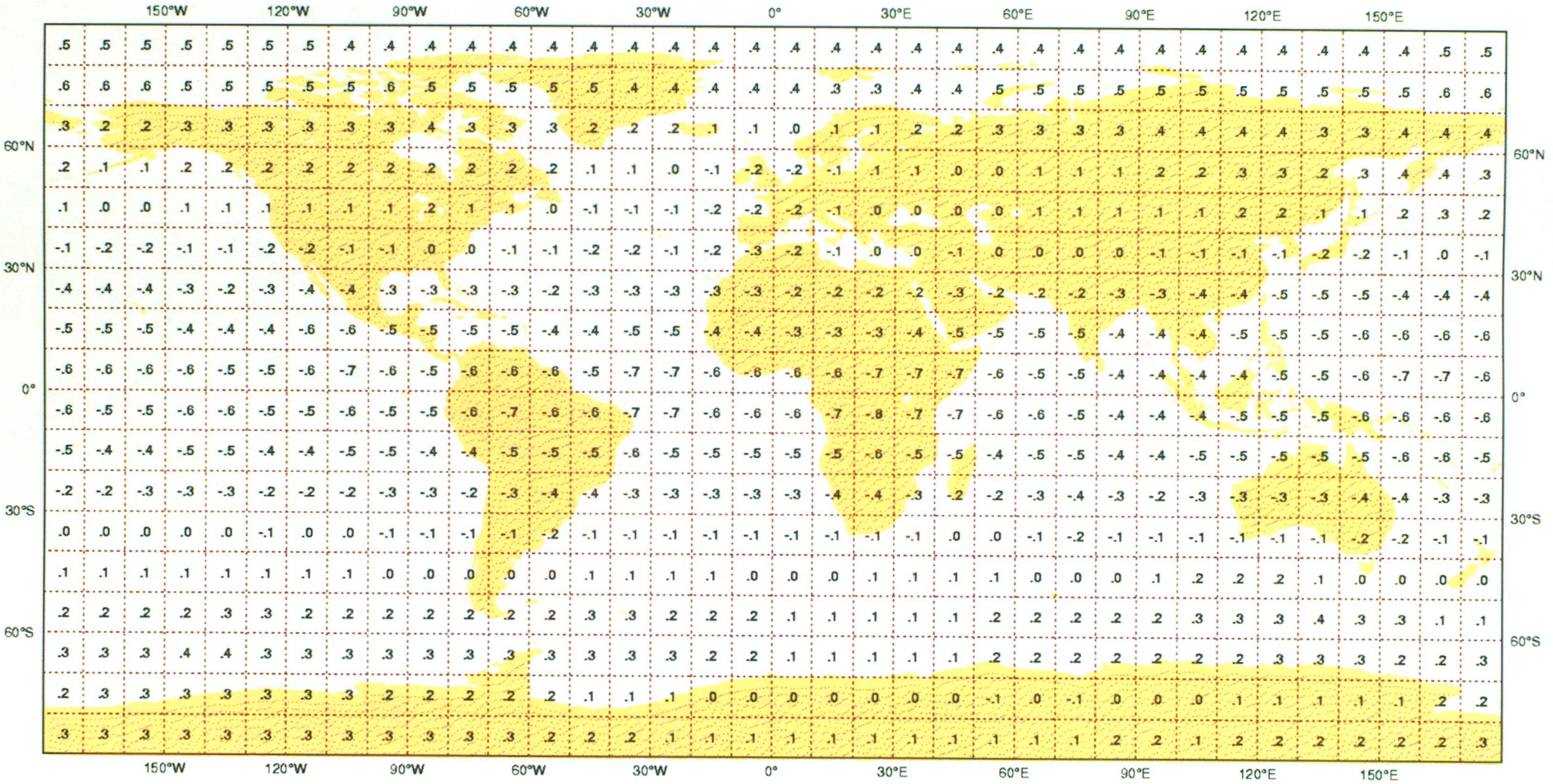
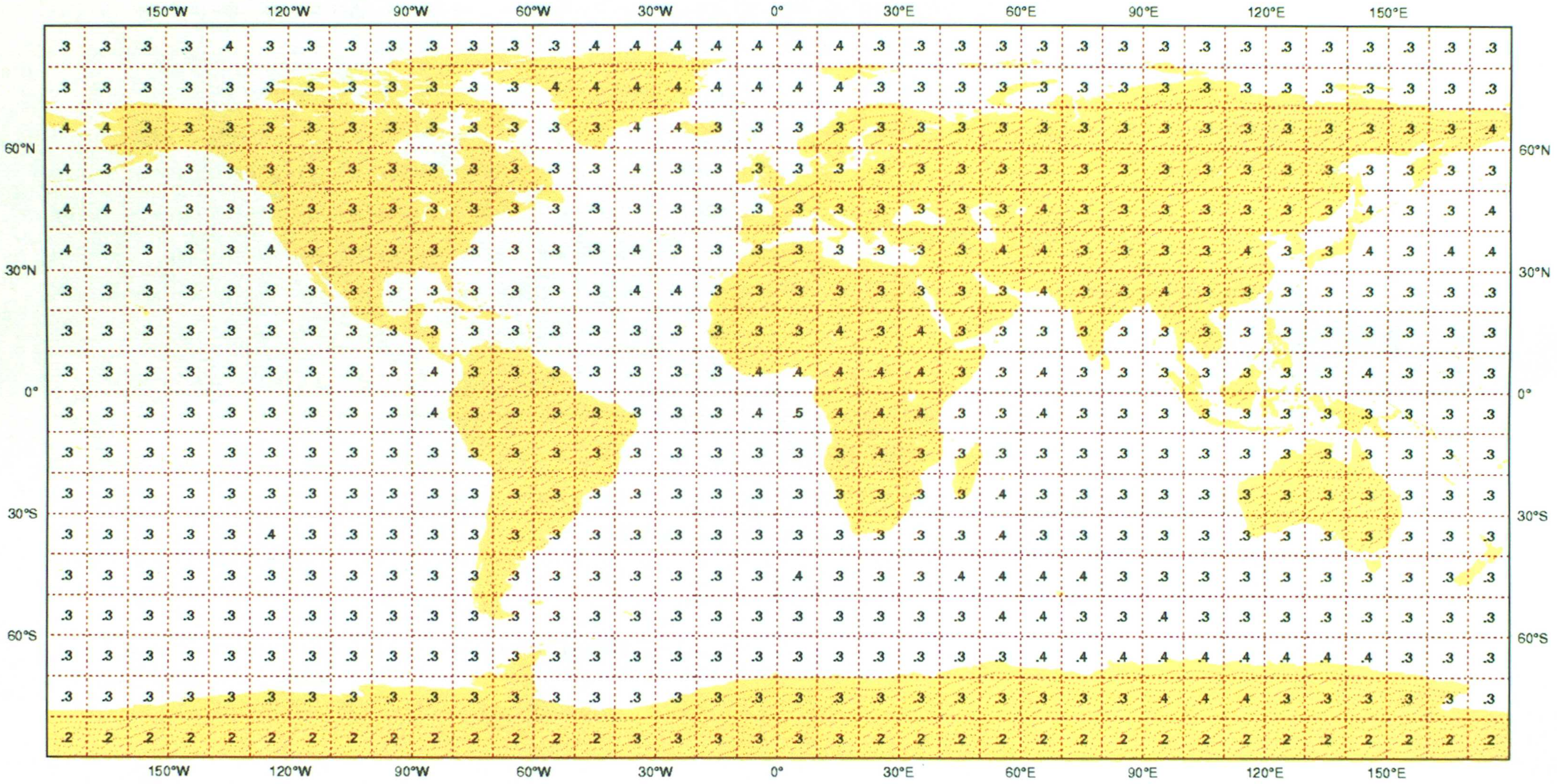

150°W 120°W 90°W 60°W 30°W 0° 30°E 60°E 90°E 120°E 150°E
60°N
30°N
0°
30°S
60°S
.2 .2 .2 .2 .2 .3 .2 .2 .2 .2 .2 .2 .2 .2 .2 .2 .2 .3 .3 .3 .2 .2 .2 .2 .2 .2 .2 .2 .2 .2 .2 .2 .2 .2 .2 .2
.3 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .3 .3 .3 .4 .4 .3 .4 .4 .3 .3 .3 .3 .3 .3 .4 .4 .4 .4 .4
.4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4
.4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4
.4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4
.4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4
.4 .4 .4 .4 .4 .4 .4 .4 .4 .5 .4 .4 .4 .4 .4 .4 .5 .4 .4 .4 .4 .4 .4 .4 .4 .4 .5 .5 .4 .4 .4 .4 .4 .4 .4 .4
.5 .4 .4 .4 .4 .5 .5 .4 .5 .5 .4 .5 .4 .4 .4 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .4 .5 .4 .5 .5 .4 .4
.5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5
.5 .5 .5 .5 .4 .5 .5 .4 .5 .5 .5 .5 .5 .5 .4 .5 .4 .4 .5 .5 .5 .5 .4 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5
.5 .5 .5 .4 .5 .5 .4 .4 .4 .5 .5 .4 .5 .4 .5 .5 .4 .5 .5 .4 .4 .4 .4 .5 .5 .5 .5 .5 .5 .4 .5 .4 .5 .5 .5 .5
.5 .5 .4 .4 .4 .5 .4 .4 .4 .4 .4 .4 .5 .4 .4 .5 .4 .4 .4 .4 .4 .4 .4 .5 .5 .5 .5 .4 .4 .4 .4 .4 .4 .4 .4 .5
.4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .5 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4
.4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4
.4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4
.4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4
.4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .3 .4 .4 .4 .3 .3 .4 .4 .4 .4 .4 .4 .4
.4 .4 .4 .4 .4 .5 .5 .5 .4 .4 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .4 .5 .4 .4 .5 .4 .4 .5 .5 .4 .4 .4 .4
150°W 120°W 90°W 60°W 30°W 0° 30°E 60°E 90°E 120°E 150°E
60°N
30°N
0°
30°S
60°S

Figure 38. ATOVS MEAN O-B brightness temperature differences (deg C). APRIL 2005
Channel: AMSUA-9 (100 hPa)
NOAA15, using all observations



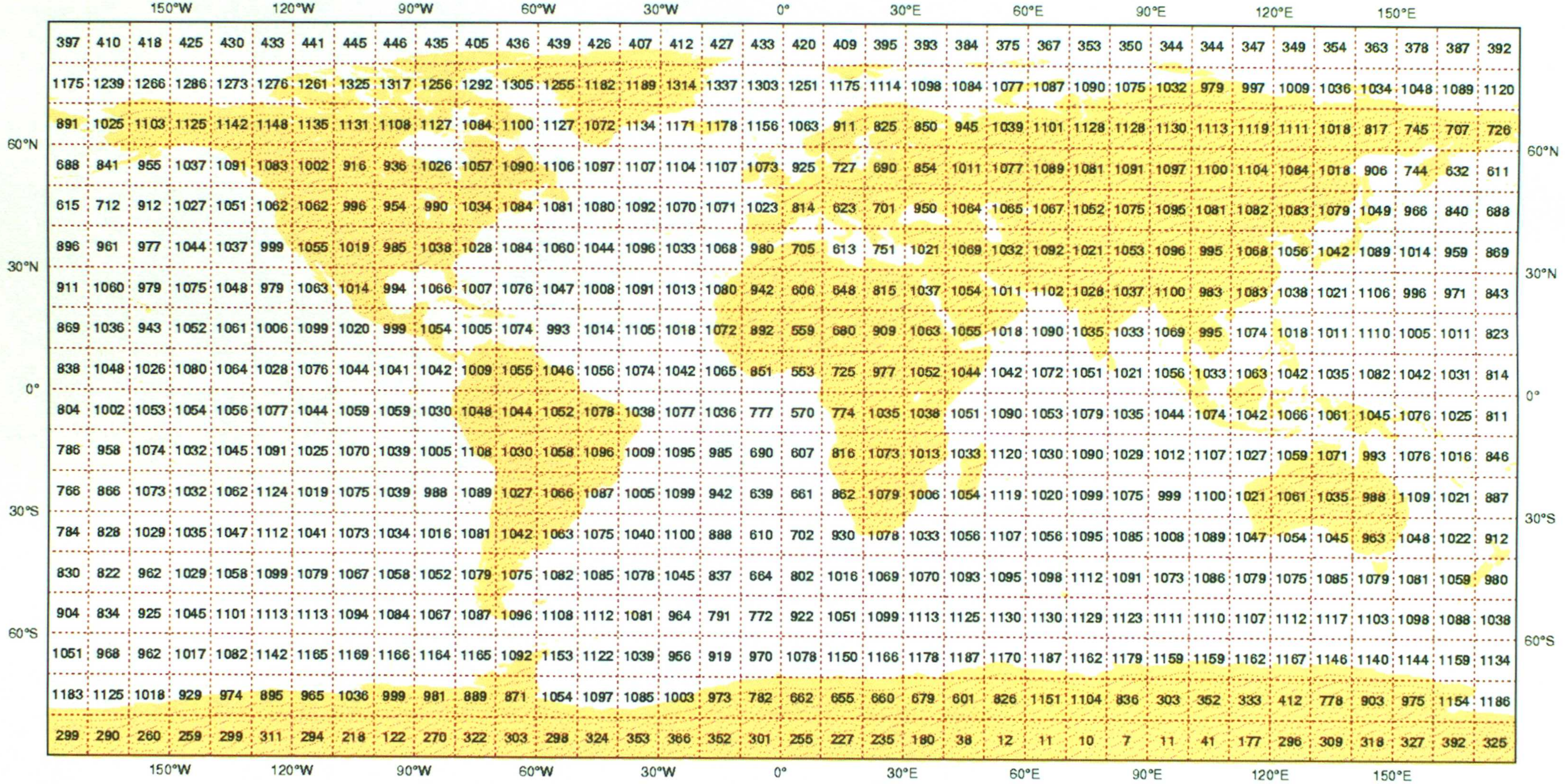
.5	.5	.5	.5	.5	.5	.5	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.5	.5
.6	.6	.6	.5	.5	.5	.5	.5	.6	.5	.5	.5	.5	.5	.4	.4	.4	.4	.4	.3	.3	.4	.4	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.6	.6
.3	.2	.2	.3	.3	.3	.3	.3	.3	.4	.3	.3	.3	.2	.2	.2	.1	.1	.0	.1	.1	.2	.2	.3	.3	.3	.3	.4	.4	.4	.4	.3	.3	.4	.4	.4
.2	.1	.1	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.1	.1	.0	-.1	-.2	-.2	-.1	.1	.1	.0	.0	.1	.1	.1	.2	.2	.3	.3	.2	.3	.4	.4	.3
.1	.0	.0	.1	.1	.1	.1	.1	.1	.2	.1	.1	.0	-.1	-.1	-.1	-.2	-.2	-.2	-.1	.0	.0	.0	.0	.1	.1	.1	.1	.1	.2	.2	.1	.1	.2	.3	.2
-.1	-.2	-.2	-.1	-.1	-.2	-.2	-.1	-.1	.0	.0	-.1	-.1	-.2	-.2	-.1	-.2	-.3	-.2	-.1	.0	.0	-.1	.0	.0	.0	.0	-.1	-.1	-.1	-.1	-.2	-.2	-.1	.0	-.1
-.4	-.4	-.4	-.3	-.2	-.3	-.4	-.4	-.3	-.3	-.3	-.3	-.2	-.3	-.3	-.3	-.3	-.3	-.2	-.2	-.2	-.2	-.3	-.2	-.2	-.2	-.3	-.3	-.4	-.4	-.5	-.5	-.5	-.4	-.4	-.4
-.5	-.5	-.5	-.4	-.4	-.4	-.6	-.6	-.5	-.5	-.5	-.5	-.4	-.4	-.5	-.5	-.4	-.4	-.3	-.3	-.3	-.4	-.5	-.5	-.5	-.5	-.4	-.4	-.4	-.5	-.5	-.5	-.6	-.6	-.6	-.6
-.6	-.6	-.6	-.6	-.5	-.5	-.6	-.7	-.6	-.5	-.6	-.6	-.6	-.5	-.7	-.7	-.6	-.6	-.6	-.6	-.7	-.7	-.7	-.6	-.5	-.5	-.4	-.4	-.4	-.4	-.5	-.5	-.6	-.7	-.7	-.6
-.6	-.5	-.5	-.6	-.6	-.5	-.5	-.6	-.5	-.5	-.6	-.7	-.6	-.6	-.7	-.7	-.6	-.6	-.6	-.7	-.8	-.7	-.7	-.6	-.6	-.5	-.4	-.4	-.4	-.5	-.5	-.5	-.6	-.6	-.6	-.6
-.5	-.4	-.4	-.5	-.5	-.4	-.4	-.5	-.5	-.4	-.4	-.5	-.5	-.5	-.6	-.5	-.5	-.5	-.5	-.5	-.6	-.5	-.5	-.4	-.5	-.5	-.4	-.4	-.5	-.5	-.5	-.5	-.5	-.6	-.6	-.5
-.2	-.2	-.3	-.3	-.3	-.2	-.2	-.2	-.3	-.3	-.2	-.3	-.4	-.4	-.3	-.3	-.3	-.3	-.3	-.4	-.4	-.3	-.2	-.2	-.3	-.4	-.3	-.2	-.3	-.3	-.3	-.3	-.4	-.4	-.3	-.3
.0	.0	.0	.0	.0	-.1	.0	.0	-.1	-.1	-.1	-.1	-.2	-.1	-.1	-.1	-.1	-.1	-.1	-.1	-.1	-.1	.0	.0	-.1	-.2	-.1	-.1	-.1	-.1	-.1	-.1	-.2	-.2	-.1	-.1
.1	.1	.1	.1	.1	.1	.1	.1	.0	.0	.0	.0	.0	.1	.1	.1	.1	.0	.0	.0	.1	.1	.1	.1	.0	.0	.0	.1	.2	.2	.2	.1	.0	.0	.0	.0
.2	.2	.2	.2	.3	.3	.2	.2	.2	.2	.2	.2	.2	.3	.3	.2	.2	.2	.1	.1	.1	.1	.1	.2	.2	.2	.2	.2	.3	.3	.3	.4	.3	.3	.1	.1
.3	.3	.3	.4	.4	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.2	.2	.1	.1	.1	.1	.1	.2	.2	.2	.2	.2	.2	.2	.3	.3	.3	.2	.2	.3
.2	.3	.3	.3	.3	.3	.3	.3	.2	.2	.2	.2	.2	.1	.1	.1	.0	.0	.0	.0	.0	.0	.0	-.1	.0	-.1	.0	.0	.0	.1	.1	.1	.1	.1	.2	.2
.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.2	.2	.2	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.2	.2	.1	.2	.2	.2	.2	.2	.2	.3

Figure 39. ATOVS SD O-B brightness temperature differences (deg C). APRIL 2005
Channel: AMSUA-9 (100 hPa)
NOAA15, using all observations



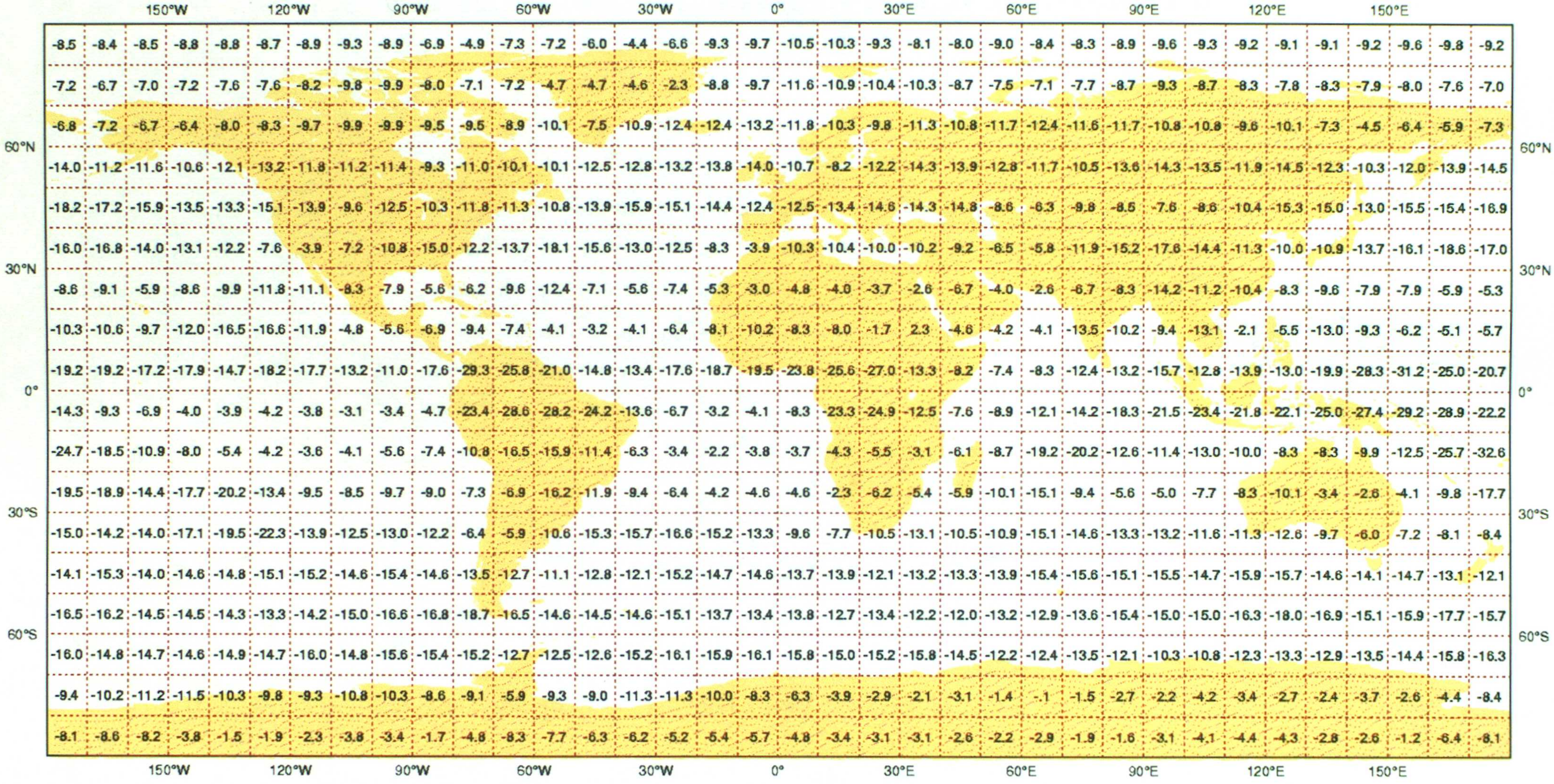
.3	.3	.3	.3	.4	.3	.3	.3	.3	.3	.3	.3	.3	.4	.4	.4	.4	.4	.4	.4	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3
.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.4	.4	.4	.4	.4	.4	.4	.4	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3
.4	.4	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.4	.4	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.4
.4	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.4	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3
.4	.4	.4	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.4	.3	.3	.3	.3	.3	.3	.3	.4	.3	.3	.4
.4	.3	.3	.3	.3	.4	.3	.3	.3	.3	.3	.3	.3	.3	.4	.3	.3	.3	.3	.3	.3	.3	.3	.4	.4	.3	.3	.3	.3	.4	.3	.3	.4	.3	.4	.4
.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.4	.4	.3	.3	.3	.3	.3	.3	.3	.3	.4	.3	.3	.4	.3	.3	.3	.3	.3	.3	.3	.3
.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.4	.3	.4	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3
.3	.3	.3	.3	.3	.3	.3	.3	.3	.4	.3	.3	.3	.3	.3	.3	.3	.4	.4	.4	.4	.4	.3	.3	.4	.3	.3	.3	.3	.3	.3	.3	.4	.3	.3	.3
.3	.3	.3	.3	.3	.3	.3	.3	.3	.4	.3	.3	.3	.3	.3	.3	.3	.4	.5	.4	.4	.4	.3	.3	.4	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3
.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.4	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3
.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.4	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3
.3	.3	.3	.3	.3	.4	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.4	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3
.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.4	.3	.3	.3	.4	.4	.4	.4	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3
.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.4	.4	.3	.3	.4	.3	.3	.3	.3	.3	.3	.3	.3
.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.4	.4	.4	.4	.4	.4	.4	.4	.4	.3	.3	.3
.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.4	.4	.4	.3	.3	.3	.3	.3	.3
.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.3	.3	.3	.3	.3	.3	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2

Figure 40. ATOVS mean daily count. APRIL 2005
NOAA16, using all observations
Global average number of observations in 24 hours = 608470



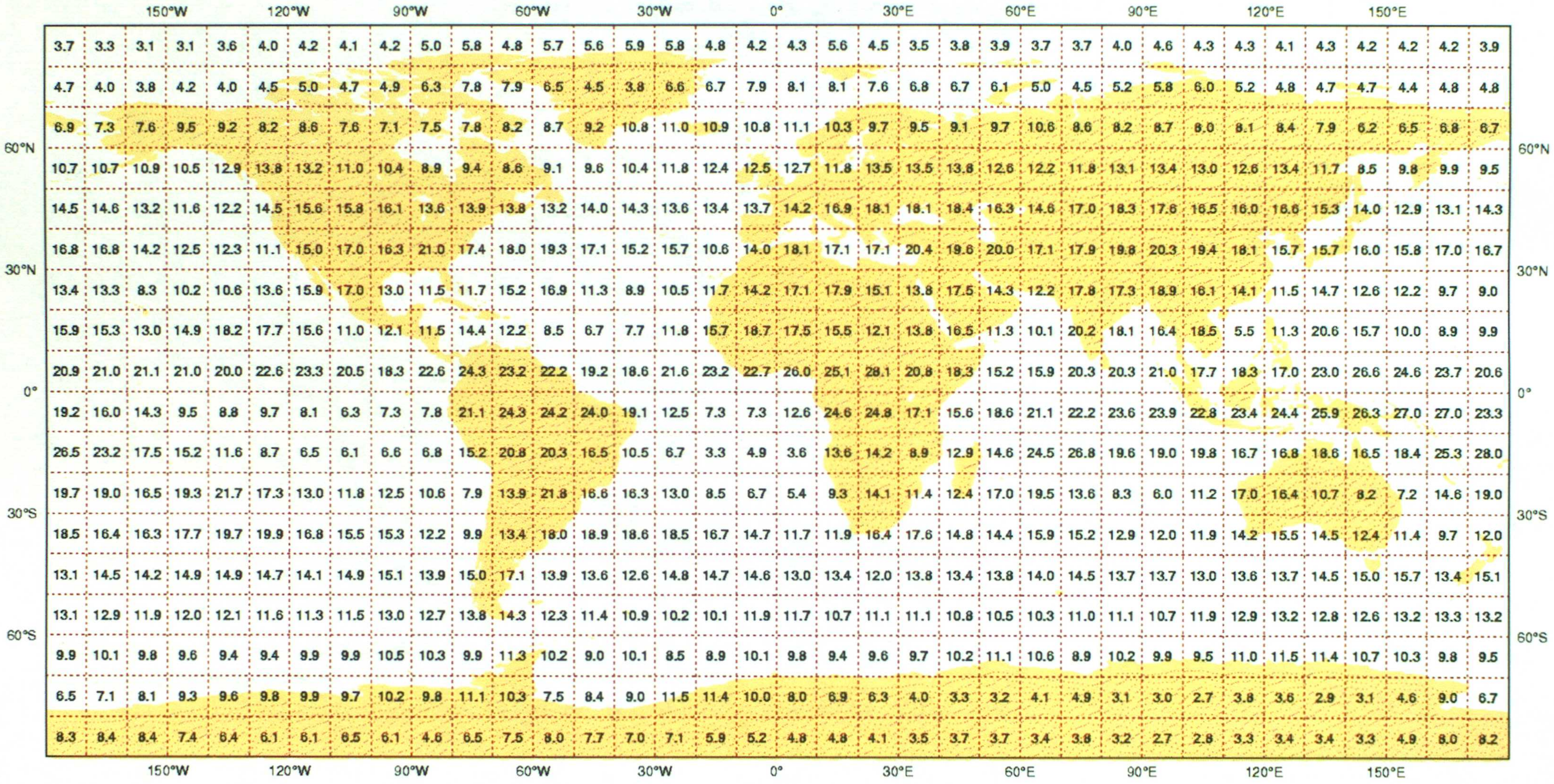
397	410	418	425	430	433	441	445	446	435	405	436	439	426	407	412	427	433	420	409	395	393	384	375	367	353	350	344	344	347	349	354	363	378	387	392
1175	1239	1266	1286	1273	1276	1261	1325	1317	1256	1292	1305	1255	1182	1189	1314	1337	1303	1251	1175	1114	1098	1084	1077	1087	1090	1075	1032	979	997	1009	1036	1034	1048	1089	1120
891	1025	1103	1125	1142	1148	1135	1131	1108	1127	1084	1100	1127	1072	1134	1171	1178	1156	1063	911	825	850	945	1039	1101	1128	1128	1130	1113	1119	1111	1018	817	745	707	726
688	841	955	1037	1091	1083	1002	916	936	1026	1057	1090	1106	1097	1107	1104	1107	1073	925	727	690	854	1011	1077	1089	1081	1091	1097	1100	1104	1084	1018	906	744	632	611
615	712	912	1027	1051	1062	1062	996	954	990	1034	1084	1081	1080	1092	1070	1071	1023	814	623	701	950	1064	1065	1067	1052	1075	1095	1081	1082	1083	1079	1049	966	840	688
896	961	977	1044	1037	999	1055	1019	985	1038	1028	1084	1060	1044	1096	1033	1068	980	705	613	751	1021	1069	1032	1092	1021	1053	1096	995	1068	1056	1042	1089	1014	959	869
911	1060	979	1075	1048	979	1063	1014	994	1066	1007	1076	1047	1008	1091	1013	1080	942	606	648	815	1037	1054	1011	1102	1028	1037	1100	983	1083	1038	1021	1106	996	971	843
869	1036	943	1052	1061	1006	1099	1020	999	1054	1005	1074	993	1014	1105	1018	1072	892	559	680	909	1063	1055	1018	1090	1035	1033	1069	995	1074	1018	1011	1110	1005	1011	823
838	1048	1026	1080	1064	1028	1076	1044	1041	1042	1009	1055	1046	1056	1074	1042	1065	851	553	725	977	1052	1044	1042	1072	1051	1021	1056	1033	1063	1042	1035	1082	1042	1031	814
804	1002	1053	1054	1056	1077	1044	1059	1059	1030	1048	1044	1052	1078	1038	1077	1036	777	570	774	1035	1038	1051	1090	1053	1079	1035	1044	1074	1042	1066	1061	1045	1076	1025	811
786	958	1074	1032	1045	1091	1025	1070	1039	1005	1108	1030	1058	1096	1009	1095	985	690	607	816	1073	1013	1033	1120	1030	1090	1029	1012	1107	1027	1059	1071	993	1076	1016	846
766	866	1073	1032	1062	1124	1019	1075	1039	988	1089	1027	1066	1087	1005	1099	942	639	661	862	1079	1006	1054	1119	1020	1099	1075	999	1100	1021	1061	1035	988	1109	1021	887
784	828	1029	1035	1047	1112	1041	1073	1034	1016	1081	1042	1063	1075	1040	1100	888	610	702	930	1078	1033	1056	1107	1056	1095	1085	1008	1089	1047	1054	1045	963	1048	1022	912
830	822	962	1029	1058	1099	1079	1067	1058	1052	1079	1075	1082	1085	1078	1045	837	664	802	1016	1069	1070	1093	1095	1098	1112	1091	1073	1086	1079	1075	1085	1079	1081	1059	980
904	834	925	1045	1101	1113	1113	1094	1084	1067	1087	1096	1108	1112	1081	964	791	772	922	1051	1099	1113	1125	1130	1130	1129	1123	1111	1110	1107	1112	1117	1103	1098	1088	1038
1051	968	962	1017	1082	1142	1165	1169	1166	1164	1165	1092	1153	1122	1039	956	919	970	1078	1150	1166	1178	1187	1170	1187	1162	1179	1159	1159	1162	1167	1146	1140	1144	1159	1134
1183	1125	1018	929	974	895	965	1036	999	981	889	871	1054	1097	1085	1003	973	782	662	655	660	679	601	826	1151	1104	836	303	352	333	412	778	903	975	1154	1186
299	290	260	259	299	311	294	218	122	270	322	303	298	324	353	366	352	301	255	227	235	180	38	12	11	10	7	11	41	177	296	309	318	327	392	325

Figure 41. ATOVS MEAN O-B brightness temperature differences (deg C). APRIL 2005
Channel: HIRS8 (Surface)
NOAA16, using all observations



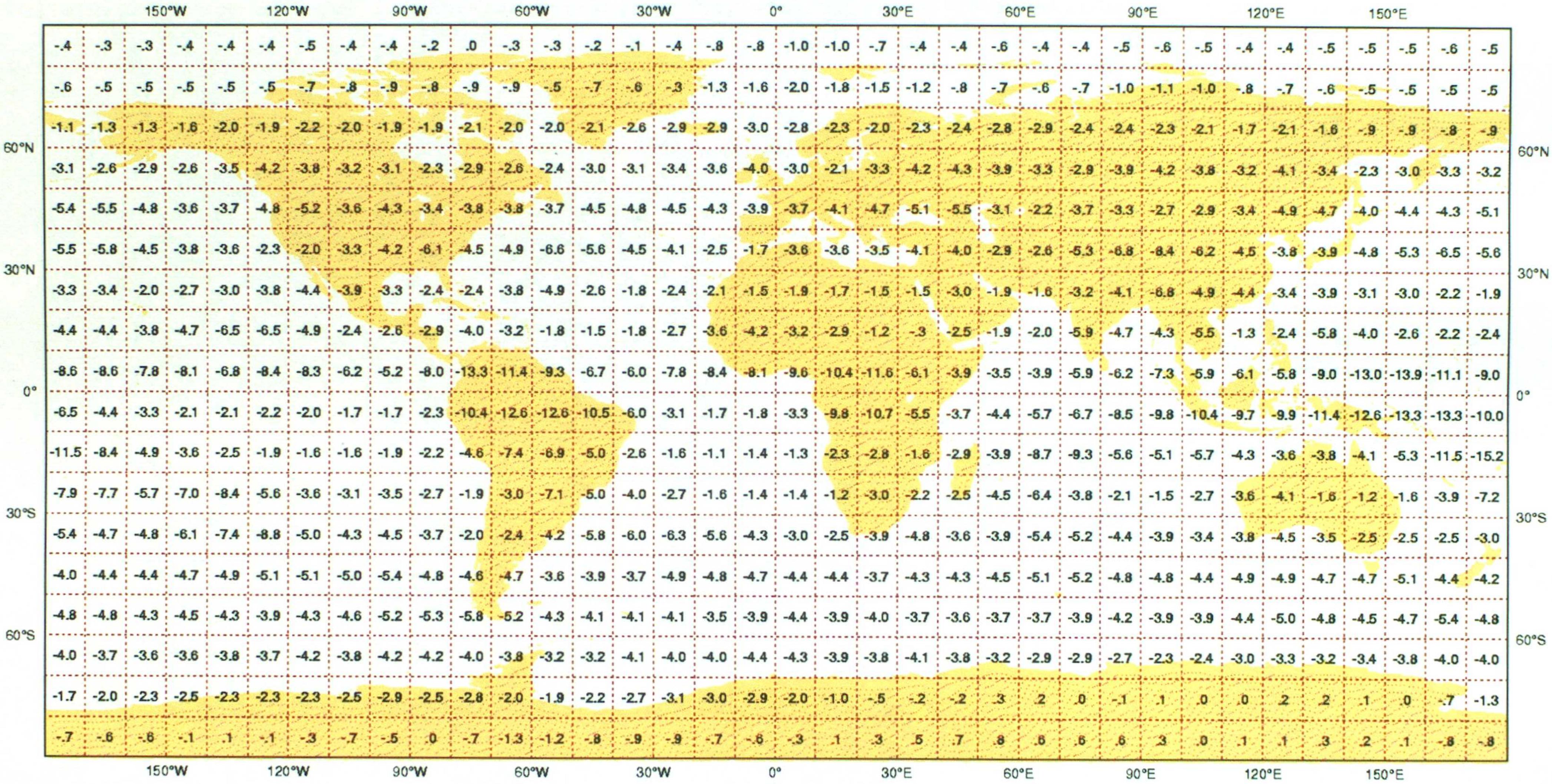
-8.5	-8.4	-8.5	-8.8	-8.8	-8.7	-8.9	-9.3	-8.9	-6.9	-4.9	-7.3	-7.2	-6.0	-4.4	-6.6	-9.3	-9.7	-10.5	-10.3	-9.3	-8.1	-8.0	-9.0	-8.4	-8.3	-8.9	-9.6	-9.3	-9.2	-9.1	-9.1	-9.2	-9.6	-9.8	-9.2
-7.2	-6.7	-7.0	-7.2	-7.6	-7.6	-8.2	-9.8	-9.9	-8.0	-7.1	-7.2	-4.7	-4.7	-4.6	-2.3	-8.8	-9.7	-11.6	-10.9	-10.4	-10.3	-8.7	-7.5	-7.1	-7.7	-8.7	-9.3	-8.7	-8.3	-7.8	-8.3	-7.9	-8.0	-7.6	-7.0
-6.8	-7.2	-6.7	-6.4	-8.0	-8.3	-9.7	-9.9	-9.9	-9.5	-9.5	-8.9	-10.1	-7.5	-10.9	-12.4	-12.4	-13.2	-11.8	-10.3	-9.8	-11.3	-10.8	-11.7	-12.4	-11.6	-11.7	-10.8	-10.8	-9.6	-10.1	-7.3	-4.5	-6.4	-5.9	-7.3
-14.0	-11.2	-11.6	-10.6	-12.1	-13.2	-11.8	-11.2	-11.4	-9.3	-11.0	-10.1	-10.1	-12.5	-12.8	-13.2	-13.8	-14.0	-10.7	-8.2	-12.2	-14.3	-13.9	-12.8	-11.7	-10.5	-13.6	-14.3	-13.5	-11.9	-14.5	-12.3	-10.3	-12.0	-13.9	-14.5
-18.2	-17.2	-15.9	-13.5	-13.3	-15.1	-13.9	-9.6	-12.5	-10.3	-11.8	-11.3	-10.8	-13.9	-15.9	-15.1	-14.4	-12.4	-12.5	-13.4	-14.6	-14.3	-14.8	-8.6	-6.3	-9.8	-8.5	-7.6	-8.6	-10.4	-15.3	-15.0	-13.0	-15.5	-15.4	-16.9
-16.0	-16.8	-14.0	-13.1	-12.2	-7.6	-3.9	-7.2	-10.8	-15.0	-12.2	-13.7	-18.1	-15.6	-13.0	-12.5	-8.3	-3.9	-10.3	-10.4	-10.0	-10.2	-9.2	-6.5	-5.8	-11.9	-15.2	-17.6	-14.4	-11.3	-10.0	-10.9	-13.7	-16.1	-18.6	-17.0
-8.6	-9.1	-5.9	-8.6	-9.9	-11.8	-11.1	-8.3	-7.9	-5.6	-6.2	-9.6	-12.4	-7.1	-5.6	-7.4	-5.3	-3.0	-4.8	-4.0	-3.7	-2.6	-6.7	-4.0	-2.6	-6.7	-8.3	-14.2	-11.2	-10.4	-8.3	-9.6	-7.9	-7.9	-5.9	-5.3
-10.3	-10.6	-9.7	-12.0	-16.5	-16.6	-11.9	-4.8	-5.6	-6.9	-9.4	-7.4	-4.1	-3.2	-4.1	-6.4	-8.1	-10.2	-8.3	-8.0	-1.7	2.3	-4.6	-4.2	-4.1	-13.5	-10.2	-9.4	-13.1	-2.1	-5.5	-13.0	-9.3	-6.2	-5.1	-5.7
-19.2	-19.2	-17.2	-17.9	-14.7	-18.2	-17.7	-13.2	-11.0	-17.6	-29.3	-25.8	-21.0	-14.8	-13.4	-17.6	-18.7	-19.5	-23.8	-25.6	-27.0	-13.3	-8.2	-7.4	-8.3	-12.4	-13.2	-15.7	-12.8	-13.9	-13.0	-19.9	-28.3	-31.2	-25.0	-20.7
-14.3	-9.3	-6.9	-4.0	-3.9	-4.2	-3.8	-3.1	-3.4	-4.7	-23.4	-28.6	-28.2	-24.2	-13.6	-6.7	-3.2	-4.1	-8.3	-23.3	-24.9	-12.5	-7.6	-8.9	-12.1	-14.2	-18.3	-21.5	-23.4	-21.8	-22.1	-25.0	-27.4	-29.2	-28.9	-22.2
-24.7	-18.5	-10.9	-8.0	-5.4	-4.2	-3.6	-4.1	-5.6	-7.4	-10.8	-16.5	-15.9	-11.4	-6.3	-3.4	-2.2	-3.8	-3.7	-4.3	-5.5	-3.1	-6.1	-8.7	-19.2	-20.2	-12.6	-11.4	-13.0	-10.0	-8.3	-8.3	-9.9	-12.5	-25.7	-32.6
-19.5	-18.9	-14.4	-17.7	-20.2	-13.4	-9.5	-8.5	-9.7	-9.0	-7.3	-6.9	-16.2	-11.9	-9.4	-6.4	-4.2	-4.6	-4.6	-2.3	-6.2	-5.4	-5.9	-10.1	-15.1	-9.4	-5.6	-5.0	-7.7	-8.3	-10.1	-3.4	-2.6	-4.1	-9.8	-17.7
-15.0	-14.2	-14.0	-17.1	-19.5	-22.3	-13.9	-12.5	-13.0	-12.2	-6.4	-5.9	-10.6	-15.3	-15.7	-16.6	-15.2	-13.3	-9.6	-7.7	-10.5	-13.1	-10.5	-10.9	-15.1	-14.6	-13.3	-13.2	-11.6	-11.3	-12.6	-9.7	-6.0	-7.2	-8.1	-8.4
-14.1	-15.3	-14.0	-14.6	-14.8	-15.1	-15.2	-14.6	-15.4	-14.6	-13.5	-12.7	-11.1	-12.8	-12.1	-15.2	-14.7	-14.6	-13.7	-13.9	-12.1	-13.2	-13.3	-13.9	-15.4	-15.6	-15.1	-15.5	-14.7	-15.9	-15.7	-14.6	-14.1	-14.7	-13.1	-12.1
-16.5	-16.2	-14.5	-14.5	-14.3	-13.3	-14.2	-15.0	-16.6	-16.8	-18.7	-16.5	-14.6	-14.5	-14.6	-15.1	-13.7	-13.4	-13.8	-12.7	-13.4	-12.2	-12.0	-13.2	-12.9	-13.6	-15.4	-15.0	-15.0	-16.3	-18.0	-16.9	-15.1	-15.9	-17.7	-15.7
-16.0	-14.8	-14.7	-14.6	-14.9	-14.7	-16.0	-14.8	-15.6	-15.4	-15.2	-12.7	-12.5	-12.6	-15.2	-16.1	-15.9	-16.1	-15.8	-15.0	-15.2	-15.8	-14.5	-12.2	-12.4	-13.5	-12.1	-10.3	-10.8	-12.3	-13.3	-12.9	-13.5	-14.4	-15.8	-16.3
-9.4	-10.2	-11.2	-11.5	-10.3	-9.8	-9.3	-10.8	-10.3	-8.6	-9.1	-5.9	-9.3	-9.0	-11.3	-11.3	-10.0	-8.3	-6.3	-3.9	-2.9	-2.1	-3.1	-1.4	-.1	-1.5	-2.7	-2.2	-4.2	-3.4	-2.7	-2.4	-3.7	-2.6	-4.4	-8.4
-8.1	-8.6	-8.2	-3.8	-1.5	-1.9	-2.3	-3.8	-3.4	-1.7	-4.8	-8.3	-7.7	-6.3	-6.2	-5.2	-5.4	-5.7	-4.8	-3.4	-3.1	-3.1	-2.6	-2.2	-2.9	-1.9	-1.6	-3.1	-4.1	-4.4	-4.3	-2.8	-2.6	-1.2	-6.4	-8.1

Figure 42. ATOVS SD O-B brightness temperature differences (deg C). APRIL 2005
Channel: HIRS8 (Surface)
NOAA16, using all observations



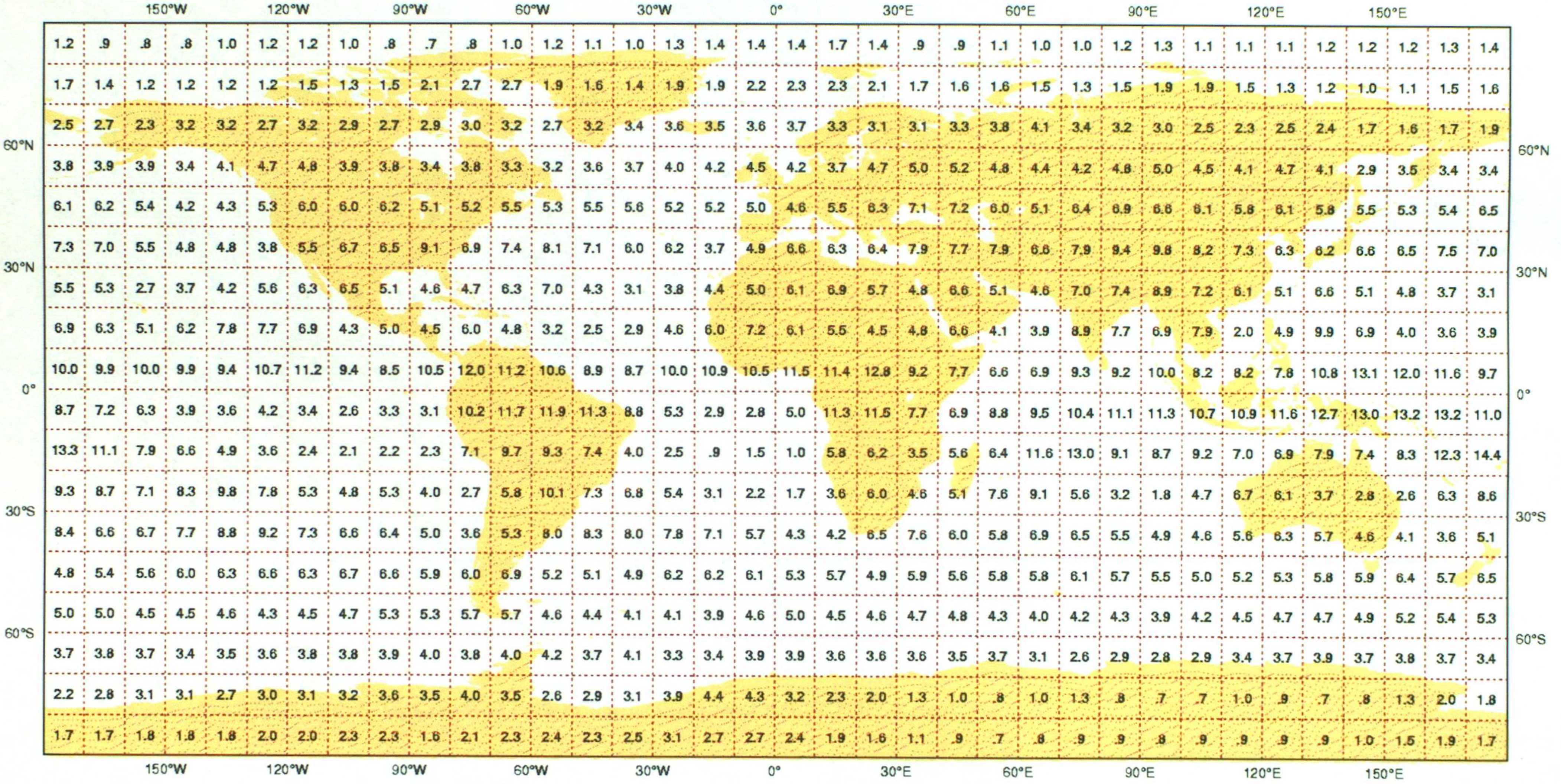
3.7	3.3	3.1	3.1	3.6	4.0	4.2	4.1	4.2	5.0	5.8	4.8	5.7	5.6	5.9	5.8	4.8	4.2	4.3	5.6	4.5	3.5	3.8	3.9	3.7	3.7	4.0	4.6	4.3	4.3	4.1	4.3	4.2	4.2	4.2	3.9
4.7	4.0	3.8	4.2	4.0	4.5	5.0	4.7	4.9	6.3	7.8	7.9	6.5	4.5	3.8	6.6	6.7	7.9	8.1	8.1	7.6	6.8	6.7	6.1	5.0	4.5	5.2	5.8	6.0	5.2	4.8	4.7	4.7	4.4	4.8	4.8
6.9	7.3	7.6	9.5	9.2	8.2	8.6	7.6	7.1	7.5	7.8	8.2	8.7	9.2	10.8	11.0	10.9	10.8	11.1	10.3	9.7	9.5	9.1	9.7	10.6	8.6	8.2	8.7	8.0	8.1	8.4	7.9	6.2	6.5	6.8	6.7
10.7	10.7	10.9	10.5	12.9	13.8	13.2	11.0	10.4	8.9	9.4	8.6	9.1	9.6	10.4	11.8	12.4	12.5	12.7	11.8	13.5	13.5	13.8	12.6	12.2	11.8	13.1	13.4	13.0	12.6	13.4	11.7	8.5	9.8	9.9	9.5
14.5	14.6	13.2	11.6	12.2	14.5	15.6	15.8	16.1	13.6	13.9	13.8	13.2	14.0	14.3	13.6	13.4	13.7	14.2	16.9	18.1	18.1	18.4	16.3	14.6	17.0	18.3	17.6	16.5	16.0	16.6	15.3	14.0	12.9	13.1	14.3
16.8	16.8	14.2	12.5	12.3	11.1	15.0	17.0	16.3	21.0	17.4	18.0	19.3	17.1	15.2	15.7	10.6	14.0	18.1	17.1	17.1	20.4	19.6	20.0	17.1	17.9	19.8	20.3	19.4	18.1	15.7	15.7	16.0	15.8	17.0	16.7
13.4	13.3	8.3	10.2	10.6	13.6	15.9	17.0	13.0	11.5	11.7	15.2	16.9	11.3	8.9	10.5	11.7	14.2	17.1	17.9	15.1	13.8	17.5	14.3	12.2	17.8	17.3	18.9	16.1	14.1	11.5	14.7	12.6	12.2	9.7	9.0
15.9	15.3	13.0	14.9	18.2	17.7	15.6	11.0	12.1	11.5	14.4	12.2	8.5	6.7	7.7	11.8	15.7	18.7	17.5	15.5	12.1	13.8	16.5	11.3	10.1	20.2	18.1	16.4	18.5	5.5	11.3	20.6	15.7	10.0	8.9	9.9
20.9	21.0	21.1	21.0	20.0	22.6	23.3	20.5	18.3	22.6	24.3	23.2	22.2	19.2	18.6	21.6	23.2	22.7	26.0	25.1	28.1	20.8	18.3	15.2	15.9	20.3	20.3	21.0	17.7	18.3	17.0	23.0	26.6	24.6	23.7	20.6
19.2	16.0	14.3	9.5	8.8	9.7	8.1	6.3	7.3	7.8	21.1	24.3	24.2	24.0	19.1	12.5	7.3	7.3	12.6	24.6	24.8	17.1	15.6	18.6	21.1	22.2	23.6	23.9	22.8	23.4	24.4	25.9	26.3	27.0	27.0	23.3
26.5	23.2	17.5	15.2	11.6	8.7	6.5	6.1	6.6	6.8	15.2	20.8	20.3	16.5	10.5	6.7	3.3	4.9	3.6	13.6	14.2	8.9	12.9	14.6	24.5	26.8	19.6	19.0	19.8	16.7	16.8	18.6	16.5	18.4	25.3	28.0
19.7	19.0	16.5	19.3	21.7	17.3	13.0	11.8	12.5	10.6	7.9	13.9	21.8	16.6	16.3	13.0	8.5	6.7	5.4	9.3	14.1	11.4	12.4	17.0	19.5	13.6	8.3	6.0	11.2	17.0	16.4	10.7	8.2	7.2	14.6	19.0
18.5	16.4	16.3	17.7	19.7	19.9	16.8	15.5	15.3	12.2	9.9	13.4	18.0	18.9	18.6	18.5	16.7	14.7	11.7	11.9	16.4	17.6	14.8	14.4	15.9	15.2	12.9	12.0	11.9	14.2	15.5	14.5	12.4	11.4	9.7	12.0
13.1	14.5	14.2	14.9	14.9	14.7	14.1	14.9	15.1	13.9	15.0	17.1	13.9	13.6	12.6	14.8	14.7	14.6	13.0	13.4	12.0	13.8	13.4	13.8	14.0	14.5	13.7	13.7	13.0	13.6	13.7	14.5	15.0	15.7	13.4	15.1
13.1	12.9	11.9	12.0	12.1	11.6	11.3	11.5	13.0	12.7	13.8	14.3	12.3	11.4	10.9	10.2	10.1	11.9	11.7	10.7	11.1	11.1	10.8	10.5	10.3	11.0	11.1	10.7	11.9	12.9	13.2	12.8	12.6	13.2	13.3	13.2
9.9	10.1	9.8	9.6	9.4	9.4	9.9	9.9	10.5	10.3	9.9	11.3	10.2	9.0	10.1	8.5	8.9	10.1	9.8	9.4	9.6	9.7	10.2	11.1	10.6	8.9	10.2	9.9	9.5	11.0	11.5	11.4	10.7	10.3	9.8	9.5
6.5	7.1	8.1	9.3	9.6	9.8	9.9	9.7	10.2	9.8	11.1	10.3	7.5	8.4	9.0	11.5	11.4	10.0	8.0	6.9	6.3	4.0	3.3	3.2	4.1	4.9	3.1	3.0	2.7	3.8	3.6	2.9	3.1	4.6	9.0	6.7
8.3	8.4	8.4	7.4	6.4	6.1	6.1	6.5	6.1	4.6	6.5	7.5	8.0	7.7	7.0	7.1	5.9	5.2	4.8	4.8	4.1	3.5	3.7	3.7	3.4	3.8	3.2	2.7	2.8	3.3	3.4	3.4	3.3	4.9	8.0	8.2

Figure 43. ATOVS MEAN O-B brightness temperature differences (deg C). APRIL 2005
Channel: HIRS15 (700 hPa)
NOAA16, using all observations



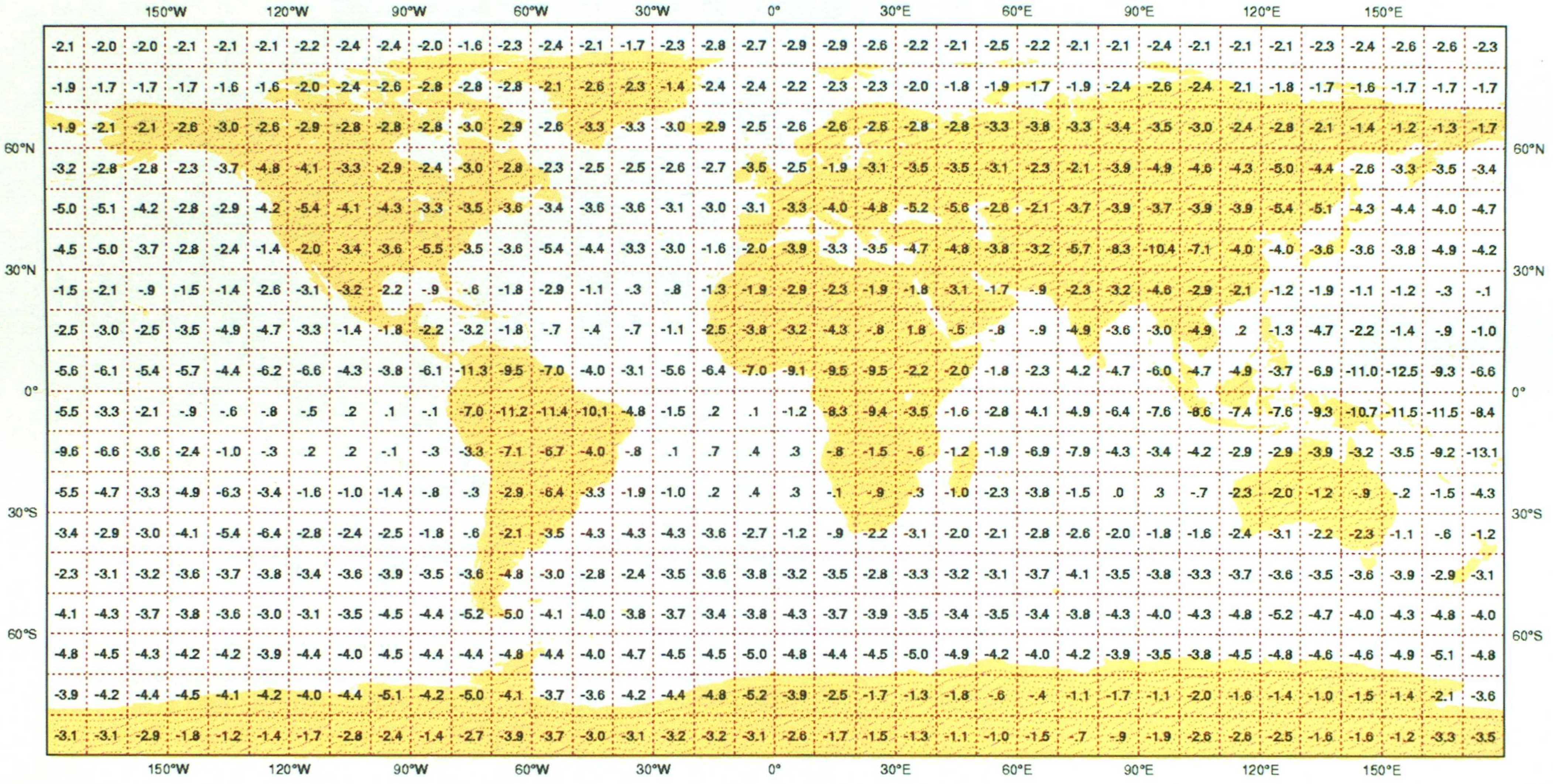
-.4	-.3	-.3	-.4	-.4	-.4	-.5	-.4	-.4	-.2	.0	-.3	-.3	-.2	-.1	-.4	-.8	-.8	-1.0	-1.0	-.7	-.4	-.4	-.6	-.4	-.4	-.5	-.6	-.5	-.4	-.4	-.5	-.5	-.5	-.6	-.5
-.6	-.5	-.5	-.5	-.5	-.5	-.7	-.8	-.9	-.8	-.9	-.9	-.5	-.7	-.6	-.3	-1.3	-1.6	-2.0	-1.8	-1.5	-1.2	-.8	-.7	-.6	-.7	-1.0	-1.1	-1.0	-.8	-.7	-.6	-.5	-.5	-.5	-.5
-1.1	-1.3	-1.3	-1.6	-2.0	-1.9	-2.2	-2.0	-1.9	-1.9	-2.1	-2.0	-2.0	-2.1	-2.6	-2.9	-2.9	-3.0	-2.8	-2.3	-2.0	-2.3	-2.4	-2.8	-2.9	-2.4	-2.4	-2.3	-2.1	-1.7	-2.1	-1.6	-.9	-.9	-.8	-.9
-3.1	-2.6	-2.9	-2.6	-3.5	-4.2	-3.8	-3.2	-3.1	-2.3	-2.9	-2.6	-2.4	-3.0	-3.1	-3.4	-3.6	-4.0	-3.0	-2.1	-3.3	-4.2	-4.3	-3.9	-3.3	-2.9	-3.9	-4.2	-3.8	-3.2	-4.1	-3.4	-2.3	-3.0	-3.3	-3.2
-5.4	-5.5	-4.8	-3.6	-3.7	-4.8	-5.2	-3.6	-4.3	-3.4	-3.8	-3.8	-3.7	-4.5	-4.8	-4.5	-4.3	-3.9	-3.7	-4.1	-4.7	-5.1	-5.5	-3.1	-2.2	-3.7	-3.3	-2.7	-2.9	-3.4	-4.9	-4.7	-4.0	-4.4	-4.3	-5.1
-5.5	-5.8	-4.5	-3.8	-3.6	-2.3	-2.0	-3.3	-4.2	-6.1	-4.5	-4.9	-6.6	-5.6	-4.5	-4.1	-2.5	-1.7	-3.6	-3.6	-3.5	-4.1	-4.0	-2.9	-2.6	-5.3	-6.8	-8.4	-6.2	-4.5	-3.8	-3.9	-4.8	-5.3	-6.5	-5.6
-3.3	-3.4	-2.0	-2.7	-3.0	-3.8	-4.4	-3.9	-3.3	-2.4	-2.4	-3.8	-4.9	-2.6	-1.8	-2.4	-2.1	-1.5	-1.9	-1.7	-1.5	-1.5	-3.0	-1.9	-1.6	-3.2	-4.1	-6.8	-4.9	-4.4	-3.4	-3.9	-3.1	-3.0	-2.2	-1.9
-4.4	-4.4	-3.8	-4.7	-6.5	-6.5	-4.9	-2.4	-2.6	-2.9	-4.0	-3.2	-1.8	-1.5	-1.8	-2.7	-3.6	-4.2	-3.2	-2.9	-1.2	-.3	-2.5	-1.9	-2.0	-5.9	-4.7	-4.3	-5.5	-1.3	-2.4	-5.8	-4.0	-2.6	-2.2	-2.4
-8.6	-8.6	-7.8	-8.1	-6.8	-8.4	-8.3	-6.2	-5.2	-8.0	-13.3	-11.4	-9.3	-6.7	-6.0	-7.8	-8.4	-8.1	-9.6	-10.4	-11.6	-6.1	-3.9	-3.5	-3.9	-5.9	-6.2	-7.3	-5.9	-6.1	-5.8	-9.0	-13.0	-13.9	-11.1	-9.0
-6.5	-4.4	-3.3	-2.1	-2.1	-2.2	-2.0	-1.7	-1.7	-2.3	-10.4	-12.6	-12.6	-10.5	-6.0	-3.1	-1.7	-1.8	-3.3	-9.8	-10.7	-5.5	-3.7	-4.4	-5.7	-6.7	-8.5	-9.8	-10.4	-9.7	-9.9	-11.4	-12.6	-13.3	-13.3	-10.0
-11.5	-8.4	-4.9	-3.6	-2.5	-1.9	-1.6	-1.6	-1.9	-2.2	-4.6	-7.4	-6.9	-5.0	-2.6	-1.6	-1.1	-1.4	-1.3	-2.3	-2.8	-1.6	-2.9	-3.9	-8.7	-9.3	-5.6	-5.1	-5.7	-4.3	-3.6	-3.8	-4.1	-5.3	-11.5	-15.2
-7.9	-7.7	-5.7	-7.0	-8.4	-5.6	-3.6	-3.1	-3.5	-2.7	-1.9	-3.0	-7.1	-5.0	-4.0	-2.7	-1.6	-1.4	-1.4	-1.2	-3.0	-2.2	-2.5	-4.5	-6.4	-3.8	-2.1	-1.5	-2.7	-3.6	-4.1	-1.6	-1.2	-1.6	-3.9	-7.2
-5.4	-4.7	-4.8	-6.1	-7.4	-8.8	-5.0	-4.3	-4.5	-3.7	-2.0	-2.4	-4.2	-5.8	-6.0	-6.3	-5.6	-4.3	-3.0	-2.5	-3.9	-4.8	-3.6	-3.9	-5.4	-5.2	-4.4	-3.9	-3.4	-3.8	-4.5	-3.5	-2.5	-2.5	-2.5	-3.0
-4.0	-4.4	-4.4	-4.7	-4.9	-5.1	-5.1	-5.0	-5.4	-4.8	-4.6	-4.7	-3.6	-3.9	-3.7	-4.9	-4.8	-4.7	-4.4	-4.4	-3.7	-4.3	-4.3	-4.5	-5.1	-5.2	-4.8	-4.8	-4.4	-4.9	-4.9	-4.7	-4.7	-5.1	-4.4	-4.2
-4.8	-4.8	-4.3	-4.5	-4.3	-3.9	-4.3	-4.6	-5.2	-5.3	-5.8	-5.2	-4.3	-4.1	-4.1	-4.1	-3.5	-3.9	-4.4	-3.9	-4.0	-3.7	-3.6	-3.7	-3.7	-3.9	-4.2	-3.9	-3.9	-4.4	-5.0	-4.8	-4.5	-4.7	-5.4	-4.8
-4.0	-3.7	-3.6	-3.6	-3.8	-3.7	-4.2	-3.8	-4.2	-4.2	-4.0	-3.8	-3.2	-3.2	-4.1	-4.0	-4.0	-4.4	-4.3	-3.9	-3.8	-4.1	-3.8	-3.2	-2.9	-2.9	-2.7	-2.3	-2.4	-3.0	-3.3	-3.2	-3.4	-3.8	-4.0	-4.0
-1.7	-2.0	-2.3	-2.5	-2.3	-2.3	-2.3	-2.5	-2.9	-2.5	-2.8	-2.0	-1.9	-2.2	-2.7	-3.1	-3.0	-2.9	-2.0	-1.0	-.5	-.2	-.2	.3	.2	.0	-.1	.1	.0	.0	.2	.2	.1	.0	-.7	-1.3
-.7	-.6	-.6	-.1	.1	-.1	-.3	-.7	-.5	.0	-.7	-1.3	-1.2	-.8	-.9	-.9	-.7	-.6	-.3	.1	.3	.5	.7	.8	.6	.6	.6	.3	.0	.1	.1	.3	.2	.1	-.8	-.8

Figure 44. ATOVS SD O-B brightness temperature differences (deg C). APRIL 2005
Channel: HIRS15 (700 hPa)
NOAA16, using all observations



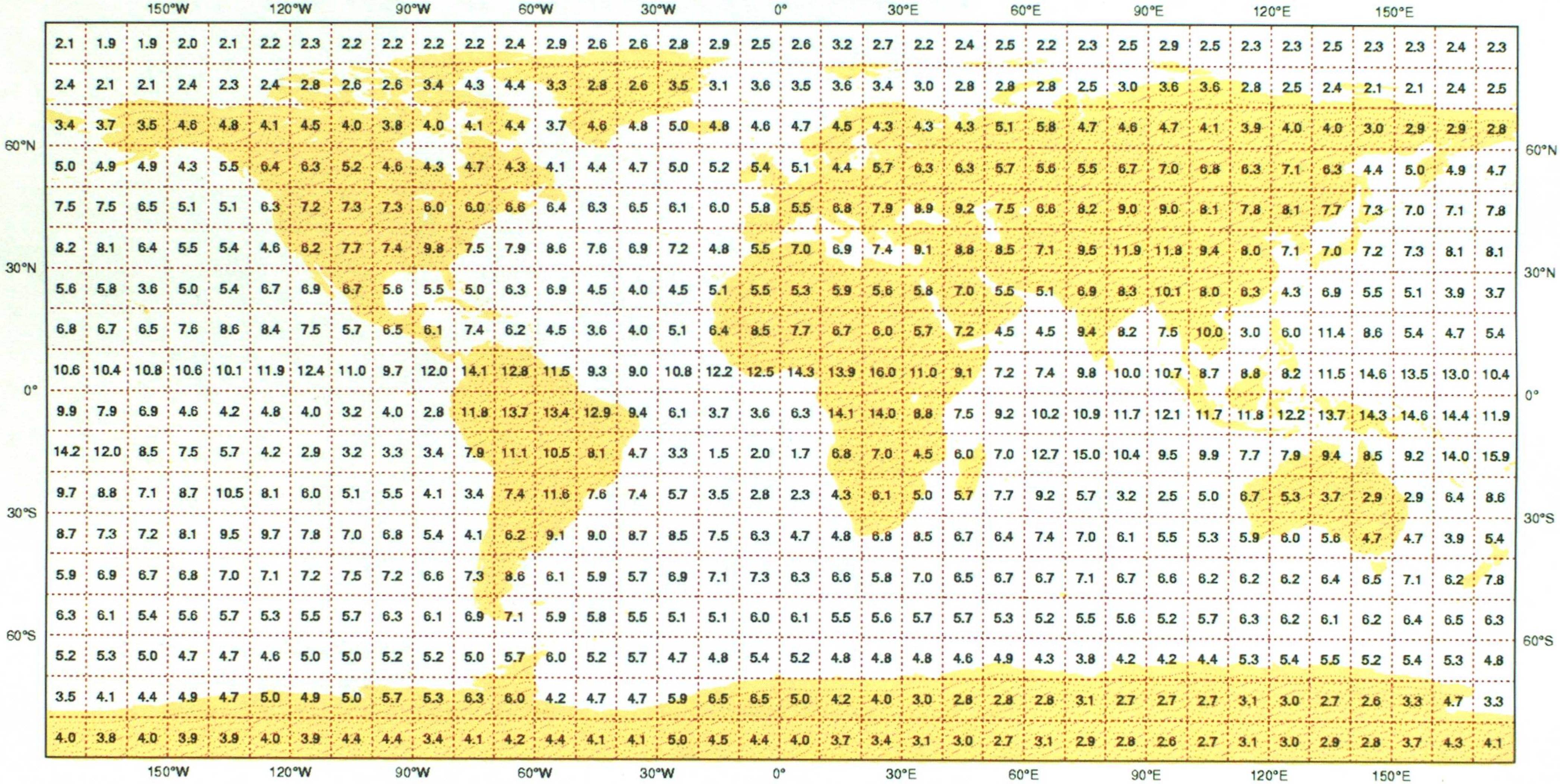
1.2	.9	.8	.8	1.0	1.2	1.2	1.0	.8	.7	.8	1.0	1.2	1.1	1.0	1.3	1.4	1.4	1.4	1.7	1.4	.9	.9	1.1	1.0	1.0	1.2	1.3	1.1	1.1	1.1	1.2	1.2	1.2	1.3	1.4
1.7	1.4	1.2	1.2	1.2	1.2	1.5	1.3	1.5	2.1	2.7	2.7	1.9	1.6	1.4	1.9	1.9	2.2	2.3	2.3	2.1	1.7	1.6	1.6	1.5	1.3	1.5	1.9	1.9	1.5	1.3	1.2	1.0	1.1	1.5	1.6
2.5	2.7	2.3	3.2	3.2	2.7	3.2	2.9	2.7	2.9	3.0	3.2	2.7	3.2	3.4	3.6	3.5	3.6	3.7	3.3	3.1	3.1	3.3	3.8	4.1	3.4	3.2	3.0	2.5	2.3	2.5	2.4	1.7	1.6	1.7	1.9
3.8	3.9	3.9	3.4	4.1	4.7	4.8	3.9	3.8	3.4	3.8	3.3	3.2	3.6	3.7	4.0	4.2	4.5	4.2	3.7	4.7	5.0	5.2	4.8	4.4	4.2	4.8	5.0	4.5	4.1	4.7	4.1	2.9	3.5	3.4	3.4
6.1	6.2	5.4	4.2	4.3	5.3	6.0	6.0	6.2	5.1	5.2	5.5	5.3	5.5	5.6	5.2	5.2	5.0	4.6	5.5	6.3	7.1	7.2	6.0	5.1	6.4	6.9	6.6	6.1	5.8	6.1	5.8	5.5	5.3	5.4	6.5
7.3	7.0	5.5	4.8	4.8	3.8	5.5	6.7	6.5	9.1	6.9	7.4	8.1	7.1	6.0	6.2	3.7	4.9	6.6	6.3	6.4	7.9	7.7	7.9	6.6	7.9	9.4	9.8	8.2	7.3	6.3	6.2	6.6	6.5	7.5	7.0
5.5	5.3	2.7	3.7	4.2	5.6	6.3	6.5	5.1	4.6	4.7	6.3	7.0	4.3	3.1	3.8	4.4	5.0	6.1	6.9	5.7	4.8	6.6	5.1	4.6	7.0	7.4	8.9	7.2	6.1	5.1	6.6	5.1	4.8	3.7	3.1
6.9	6.3	5.1	6.2	7.8	7.7	6.9	4.3	5.0	4.5	6.0	4.8	3.2	2.5	2.9	4.6	6.0	7.2	6.1	5.5	4.5	4.8	6.6	4.1	3.9	8.9	7.7	6.9	7.9	2.0	4.9	9.9	6.9	4.0	3.6	3.9
10.0	9.9	10.0	9.9	9.4	10.7	11.2	9.4	8.5	10.5	12.0	11.2	10.6	8.9	8.7	10.0	10.9	10.5	11.5	11.4	12.8	9.2	7.7	6.6	6.9	9.3	9.2	10.0	8.2	8.2	7.8	10.8	13.1	12.0	11.6	9.7
8.7	7.2	6.3	3.9	3.6	4.2	3.4	2.6	3.3	3.1	10.2	11.7	11.9	11.3	8.8	5.3	2.9	2.8	5.0	11.3	11.5	7.7	6.9	8.8	9.5	10.4	11.1	11.3	10.7	10.9	11.6	12.7	13.0	13.2	13.2	11.0
13.3	11.1	7.9	6.6	4.9	3.6	2.4	2.1	2.2	2.3	7.1	9.7	9.3	7.4	4.0	2.5	.9	1.5	1.0	5.8	6.2	3.5	5.6	6.4	11.6	13.0	9.1	8.7	9.2	7.0	6.9	7.9	7.4	8.3	12.3	14.4
9.3	8.7	7.1	8.3	9.8	7.8	5.3	4.8	5.3	4.0	2.7	5.8	10.1	7.3	6.8	5.4	3.1	2.2	1.7	3.6	6.0	4.6	5.1	7.6	9.1	5.6	3.2	1.8	4.7	6.7	6.1	3.7	2.8	2.6	6.3	8.6
8.4	6.6	6.7	7.7	8.8	9.2	7.3	6.6	6.4	5.0	3.6	5.3	8.0	8.3	8.0	7.8	7.1	5.7	4.3	4.2	6.5	7.6	6.0	5.8	6.9	6.5	5.5	4.9	4.6	5.6	6.3	5.7	4.6	4.1	3.6	5.1
4.8	5.4	5.6	6.0	6.3	6.6	6.3	6.7	6.6	5.9	6.0	6.9	5.2	5.1	4.9	6.2	6.2	6.1	5.3	5.7	4.9	5.9	5.6	5.8	5.8	6.1	5.7	5.5	5.0	5.2	5.3	5.8	5.9	6.4	5.7	6.5
5.0	5.0	4.5	4.5	4.6	4.3	4.5	4.7	5.3	5.3	5.7	5.7	4.6	4.4	4.1	4.1	3.9	4.6	5.0	4.5	4.6	4.7	4.8	4.3	4.0	4.2	4.3	3.9	4.2	4.5	4.7	4.7	4.9	5.2	5.4	5.3
3.7	3.8	3.7	3.4	3.5	3.6	3.8	3.8	3.9	4.0	3.8	4.0	4.2	3.7	4.1	3.3	3.4	3.9	3.9	3.6	3.6	3.6	3.5	3.7	3.1	2.6	2.9	2.8	2.9	3.4	3.7	3.9	3.7	3.8	3.7	3.4
2.2	2.8	3.1	3.1	2.7	3.0	3.1	3.2	3.6	3.5	4.0	3.5	2.6	2.9	3.1	3.9	4.4	4.3	3.2	2.3	2.0	1.3	1.0	.8	1.0	1.3	.8	.7	.7	1.0	.9	.7	.8	1.3	2.0	1.8
1.7	1.7	1.8	1.8	1.8	2.0	2.0	2.3	2.3	1.6	2.1	2.3	2.4	2.3	2.5	3.1	2.7	2.7	2.4	1.9	1.6	1.1	.9	.7	.8	.9	.9	.8	.9	.9	.9	.9	1.0	1.5	1.9	1.7

Figure 45. ATOVS MEAN O-B brightness temperature differences (deg C). APRIL 2005
Channel: HIRS11 (500 - 700 hPa)
NOAA16, using all observations



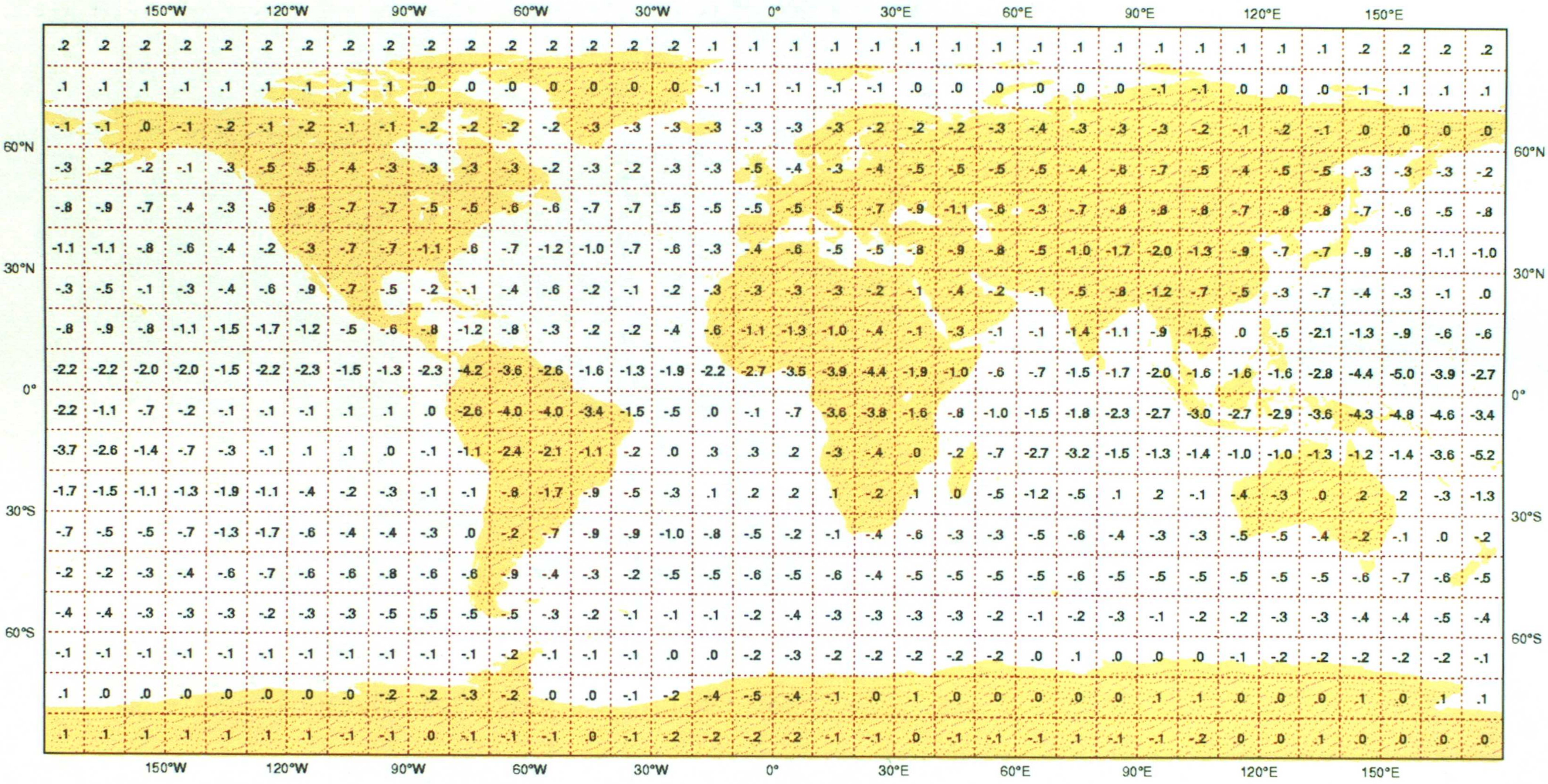
-2.1	-2.0	-2.0	-2.1	-2.1	-2.1	-2.2	-2.4	-2.4	-2.0	-1.6	-2.3	-2.4	-2.1	-1.7	-2.3	-2.8	-2.7	-2.9	-2.9	-2.6	-2.2	-2.1	-2.5	-2.2	-2.1	-2.1	-2.4	-2.1	-2.1	-2.1	-2.3	-2.4	-2.6	-2.6	-2.3
-1.9	-1.7	-1.7	-1.7	-1.6	-1.6	-2.0	-2.4	-2.6	-2.8	-2.8	-2.8	-2.1	-2.6	-2.3	-1.4	-2.4	-2.4	-2.2	-2.3	-2.3	-2.0	-1.8	-1.9	-1.7	-1.9	-2.4	-2.6	-2.4	-2.1	-1.8	-1.7	-1.6	-1.7	-1.7	-1.7
-1.9	-2.1	-2.1	-2.6	-3.0	-2.6	-2.9	-2.8	-2.8	-2.8	-3.0	-2.9	-2.6	-3.3	-3.3	-3.0	-2.9	-2.5	-2.6	-2.6	-2.6	-2.8	-2.8	-3.3	-3.8	-3.3	-3.4	-3.5	-3.0	-2.4	-2.8	-2.1	-1.4	-1.2	-1.3	-1.7
-3.2	-2.8	-2.8	-2.3	-3.7	-4.8	-4.1	-3.3	-2.9	-2.4	-3.0	-2.8	-2.3	-2.5	-2.5	-2.6	-2.7	-3.5	-2.5	-1.9	-3.1	-3.5	-3.5	-3.1	-2.3	-2.1	-3.9	-4.9	-4.6	-4.3	-5.0	-4.4	-2.6	-3.3	-3.5	-3.4
-5.0	-5.1	-4.2	-2.8	-2.9	-4.2	-5.4	-4.1	-4.3	-3.3	-3.5	-3.6	-3.4	-3.6	-3.6	-3.1	-3.0	-3.1	-3.3	-4.0	-4.8	-5.2	-5.6	-2.6	-2.1	-3.7	-3.9	-3.7	-3.9	-3.9	-5.4	-5.1	-4.3	-4.4	-4.0	-4.7
-4.5	-5.0	-3.7	-2.8	-2.4	-1.4	-2.0	-3.4	-3.6	-5.5	-3.5	-3.6	-5.4	-4.4	-3.3	-3.0	-1.6	-2.0	-3.9	-3.3	-3.5	-4.7	-4.8	-3.8	-3.2	-5.7	-8.3	-10.4	-7.1	-4.0	-4.0	-3.6	-3.6	-3.8	-4.9	-4.2
-1.5	-2.1	-.9	-1.5	-1.4	-2.6	-3.1	-3.2	-2.2	-.9	-.6	-1.8	-2.9	-1.1	-.3	-.8	-1.3	-1.9	-2.9	-2.3	-1.9	-1.8	-3.1	-1.7	-.9	-2.3	-3.2	-4.6	-2.9	-2.1	-1.2	-1.9	-1.1	-1.2	-.3	-.1
-2.5	-3.0	-2.5	-3.5	-4.9	-4.7	-3.3	-1.4	-1.8	-2.2	-3.2	-1.8	-.7	-.4	-.7	-1.1	-2.5	-3.8	-3.2	-4.3	-.8	1.8	-.5	-.8	-.9	-4.9	-3.6	-3.0	-4.9	.2	-1.3	-4.7	-2.2	-1.4	-.9	-1.0
-5.6	-6.1	-5.4	-5.7	-4.4	-6.2	-6.6	-4.3	-3.8	-6.1	-11.3	-9.5	-7.0	-4.0	-3.1	-5.6	-6.4	-7.0	-9.1	-9.5	-9.5	-2.2	-2.0	-1.8	-2.3	-4.2	-4.7	-6.0	-4.7	-4.9	-3.7	-6.9	-11.0	-12.5	-9.3	-6.6
-5.5	-3.3	-2.1	-.9	-.6	-.8	-.5	.2	.1	-.1	-7.0	-11.2	-11.4	-10.1	-4.8	-1.5	.2	.1	-1.2	-8.3	-9.4	-3.5	-1.6	-2.8	-4.1	-4.9	-6.4	-7.6	-8.6	-7.4	-7.6	-9.3	-10.7	-11.5	-11.5	-8.4
-9.6	-6.6	-3.6	-2.4	-1.0	-.3	.2	.2	-.1	-.3	-3.3	-7.1	-6.7	-4.0	-.8	.1	.7	.4	.3	-.8	-1.5	-.6	-1.2	-1.9	-6.9	-7.9	-4.3	-3.4	-4.2	-2.9	-2.9	-3.9	-3.2	-3.5	-9.2	-13.1
-5.5	-4.7	-3.3	-4.9	-6.3	-3.4	-1.6	-1.0	-1.4	-.8	-.3	-2.9	-6.4	-3.3	-1.9	-1.0	.2	.4	.3	-.1	-.9	-.3	-1.0	-2.3	-3.8	-1.5	.0	.3	-.7	-2.3	-2.0	-1.2	-.9	-.2	-1.5	-4.3
-3.4	-2.9	-3.0	-4.1	-5.4	-6.4	-2.8	-2.4	-2.5	-1.8	-.6	-2.1	-3.5	-4.3	-4.3	-4.3	-3.6	-2.7	-1.2	-.9	-2.2	-3.1	-2.0	-2.1	-2.8	-2.6	-2.0	-1.8	-1.6	-2.4	-3.1	-2.2	-2.3	-1.1	-.6	-1.2
-2.3	-3.1	-3.2	-3.6	-3.7	-3.8	-3.4	-3.6	-3.9	-3.5	-3.6	-4.8	-3.0	-2.8	-2.4	-3.5	-3.6	-3.8	-3.2	-3.5	-2.8	-3.3	-3.2	-3.1	-3.7	-4.1	-3.5	-3.8	-3.3	-3.7	-3.6	-3.5	-3.6	-3.9	-2.9	-3.1
-4.1	-4.3	-3.7	-3.8	-3.6	-3.0	-3.1	-3.5	-4.5	-4.4	-5.2	-5.0	-4.1	-4.0	-3.8	-3.7	-3.4	-3.8	-4.3	-3.7	-3.9	-3.5	-3.4	-3.5	-3.4	-3.8	-4.3	-4.0	-4.3	-4.8	-5.2	-4.7	-4.0	-4.3	-4.8	-4.0
-4.8	-4.5	-4.3	-4.2	-4.2	-3.9	-4.4	-4.0	-4.5	-4.4	-4.4	-4.8	-4.4	-4.0	-4.7	-4.5	-4.5	-5.0	-4.8	-4.4	-4.5	-5.0	-4.9	-4.2	-4.0	-4.2	-3.9	-3.5	-3.8	-4.5	-4.8	-4.6	-4.6	-4.9	-5.1	-4.8
-3.9	-4.2	-4.4	-4.5	-4.1	-4.2	-4.0	-4.4	-5.1	-4.2	-5.0	-4.1	-3.7	-3.6	-4.2	-4.4	-4.8	-5.2	-3.9	-2.5	-1.7	-1.3	-1.8	-.6	-.4	-1.1	-1.7	-1.1	-2.0	-1.6	-1.4	-1.0	-1.5	-1.4	-2.1	-3.6
-3.1	-3.1	-2.9	-1.8	-1.2	-1.4	-1.7	-2.8	-2.4	-1.4	-2.7	-3.9	-3.7	-3.0	-3.1	-3.2	-3.2	-3.1	-2.6	-1.7	-1.5	-1.3	-1.1	-1.0	-1.5	-.7	-.9	-1.9	-2.6	-2.6	-2.5	-1.6	-1.6	-1.2	-3.3	-3.5

Figure 46. ATOVS SD O-B brightness temperature differences (deg C). APRIL 2005
Channel: HIRS11 (500 - 700 hPa)
NOAA16, using all observations



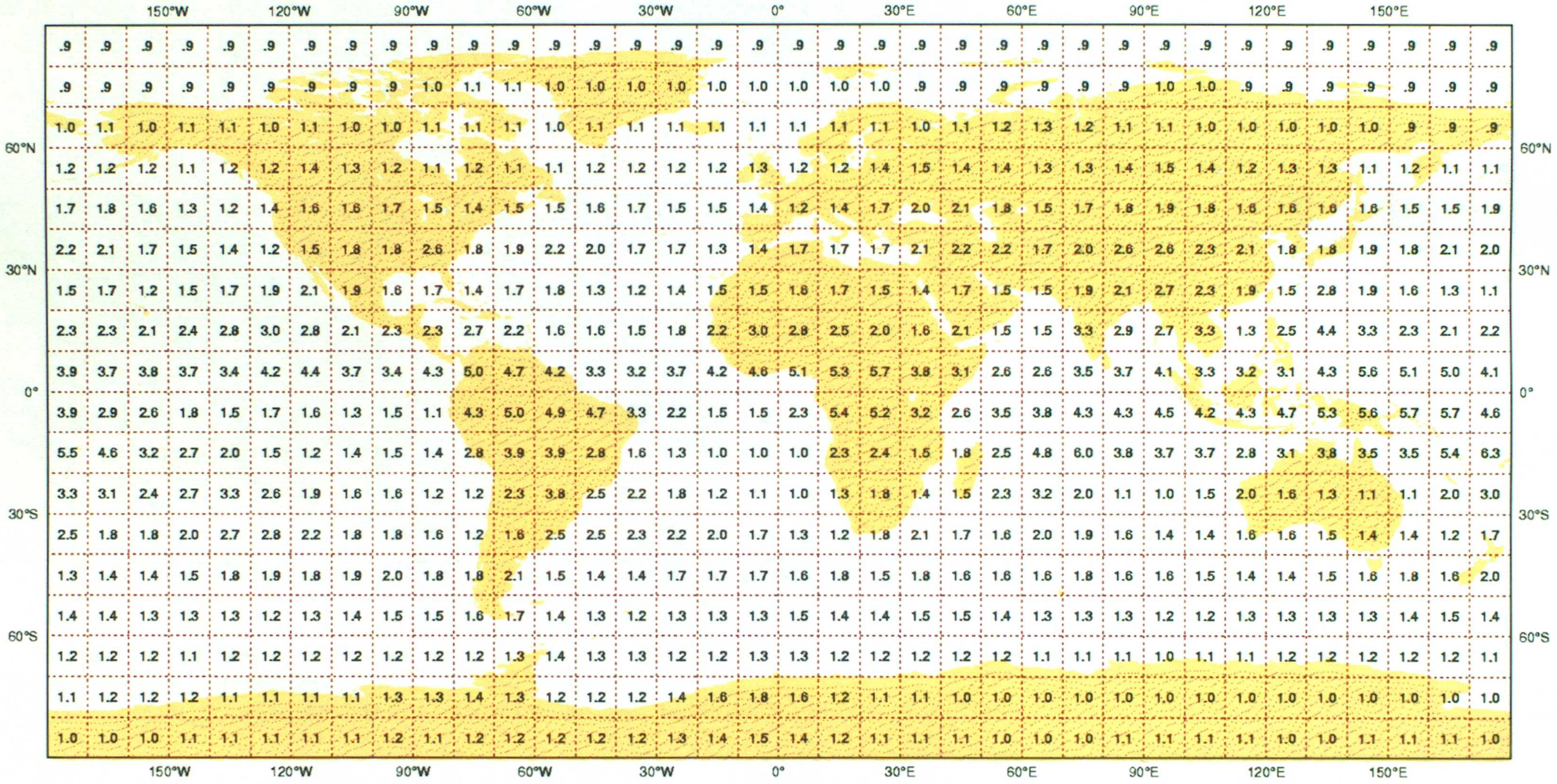
2.1	1.9	1.9	2.0	2.1	2.2	2.3	2.2	2.2	2.2	2.2	2.4	2.9	2.6	2.6	2.8	2.9	2.5	2.6	3.2	2.7	2.2	2.4	2.5	2.2	2.3	2.5	2.9	2.5	2.3	2.3	2.5	2.3	2.3	2.4	2.3
2.4	2.1	2.1	2.4	2.3	2.4	2.8	2.6	2.6	3.4	4.3	4.4	3.3	2.8	2.6	3.5	3.1	3.6	3.5	3.6	3.4	3.0	2.8	2.8	2.8	2.5	3.0	3.6	3.6	2.8	2.5	2.4	2.1	2.1	2.4	2.5
3.4	3.7	3.5	4.6	4.8	4.1	4.5	4.0	3.8	4.0	4.1	4.4	3.7	4.6	4.8	5.0	4.8	4.6	4.7	4.5	4.3	4.3	4.3	5.1	5.8	4.7	4.6	4.7	4.1	3.9	4.0	4.0	3.0	2.9	2.9	2.8
5.0	4.9	4.9	4.3	5.5	6.4	6.3	5.2	4.6	4.3	4.7	4.3	4.1	4.4	4.7	5.0	5.2	5.4	5.1	4.4	5.7	6.3	6.3	5.7	5.6	5.5	6.7	7.0	6.8	6.3	7.1	6.3	4.4	5.0	4.9	4.7
7.5	7.5	6.5	5.1	5.1	6.3	7.2	7.3	7.3	6.0	6.0	6.6	6.4	6.3	6.5	6.1	6.0	5.8	5.5	6.8	7.9	8.9	9.2	7.5	6.6	8.2	9.0	9.0	8.1	7.8	8.1	7.7	7.3	7.0	7.1	7.8
8.2	8.1	6.4	5.5	5.4	4.6	6.2	7.7	7.4	9.8	7.5	7.9	8.6	7.6	6.9	7.2	4.8	5.5	7.0	6.9	7.4	9.1	8.8	8.5	7.1	9.5	11.9	11.8	9.4	8.0	7.1	7.0	7.2	7.3	8.1	8.1
5.6	5.8	3.6	5.0	5.4	6.7	6.9	6.7	5.6	5.5	5.0	6.3	6.9	4.5	4.0	4.5	5.1	5.5	5.3	5.9	5.6	5.8	7.0	5.5	5.1	6.9	8.3	10.1	8.0	6.3	4.3	6.9	5.5	5.1	3.9	3.7
6.8	6.7	6.5	7.6	8.6	8.4	7.5	5.7	6.5	6.1	7.4	6.2	4.5	3.6	4.0	5.1	6.4	8.5	7.7	6.7	6.0	5.7	7.2	4.5	4.5	9.4	8.2	7.5	10.0	3.0	6.0	11.4	8.6	5.4	4.7	5.4
10.6	10.4	10.8	10.6	10.1	11.9	12.4	11.0	9.7	12.0	14.1	12.8	11.5	9.3	9.0	10.8	12.2	12.5	14.3	13.9	16.0	11.0	9.1	7.2	7.4	9.8	10.0	10.7	8.7	8.8	8.2	11.5	14.6	13.5	13.0	10.4
9.9	7.9	6.9	4.6	4.2	4.8	4.0	3.2	4.0	2.8	11.8	13.7	13.4	12.9	9.4	6.1	3.7	3.6	6.3	14.1	14.0	8.8	7.5	9.2	10.2	10.9	11.7	12.1	11.7	11.8	12.2	13.7	14.3	14.6	14.4	11.9
14.2	12.0	8.5	7.5	5.7	4.2	2.9	3.2	3.3	3.4	7.9	11.1	10.5	8.1	4.7	3.3	1.5	2.0	1.7	6.8	7.0	4.5	6.0	7.0	12.7	15.0	10.4	9.5	9.9	7.7	7.9	9.4	8.5	9.2	14.0	15.9
9.7	8.8	7.1	8.7	10.5	8.1	6.0	5.1	5.5	4.1	3.4	7.4	11.6	7.6	7.4	5.7	3.5	2.8	2.3	4.3	6.1	5.0	5.7	7.7	9.2	5.7	3.2	2.5	5.0	6.7	5.3	3.7	2.9	2.9	6.4	8.6
8.7	7.3	7.2	8.1	9.5	9.7	7.8	7.0	6.8	5.4	4.1	6.2	9.1	9.0	8.7	8.5	7.5	6.3	4.7	4.8	6.8	8.5	6.7	6.4	7.4	7.0	6.1	5.5	5.3	5.9	6.0	5.6	4.7	4.7	3.9	5.4
5.9	6.9	6.7	6.8	7.0	7.1	7.2	7.5	7.2	6.6	7.3	8.6	6.1	5.9	5.7	6.9	7.1	7.3	6.3	6.6	5.8	7.0	6.5	6.7	6.7	7.1	6.7	6.6	6.2	6.2	6.2	6.4	6.5	7.1	6.2	7.8
6.3	6.1	5.4	5.6	5.7	5.3	5.5	5.7	6.3	6.1	6.9	7.1	5.9	5.8	5.5	5.1	5.1	6.0	6.1	5.5	5.6	5.7	5.7	5.3	5.2	5.5	5.6	5.2	5.7	6.3	6.2	6.1	6.2	6.4	6.5	6.3
5.2	5.3	5.0	4.7	4.7	4.6	5.0	5.0	5.2	5.2	5.0	5.7	6.0	5.2	5.7	4.7	4.8	5.4	5.2	4.8	4.8	4.8	4.6	4.9	4.3	3.8	4.2	4.2	4.4	5.3	5.4	5.5	5.2	5.4	5.3	4.8
3.5	4.1	4.4	4.9	4.7	5.0	4.9	5.0	5.7	5.3	6.3	6.0	4.2	4.7	4.7	5.9	6.5	6.5	5.0	4.2	4.0	3.0	2.8	2.8	2.8	3.1	2.7	2.7	2.7	3.1	3.0	2.7	2.6	3.3	4.7	3.3
4.0	3.8	4.0	3.9	3.9	4.0	3.9	4.4	4.4	3.4	4.1	4.2	4.4	4.1	4.1	5.0	4.5	4.4	4.0	3.7	3.4	3.1	3.0	2.7	3.1	2.9	2.8	2.6	2.7	3.1	3.0	2.9	2.8	3.7	4.3	4.1

Figure 47. ATOVS MEAN O-B brightness temperature differences (deg C). APRIL 2005
Channel: HIRS4 (400 hPa)
NOAA16, using all observations



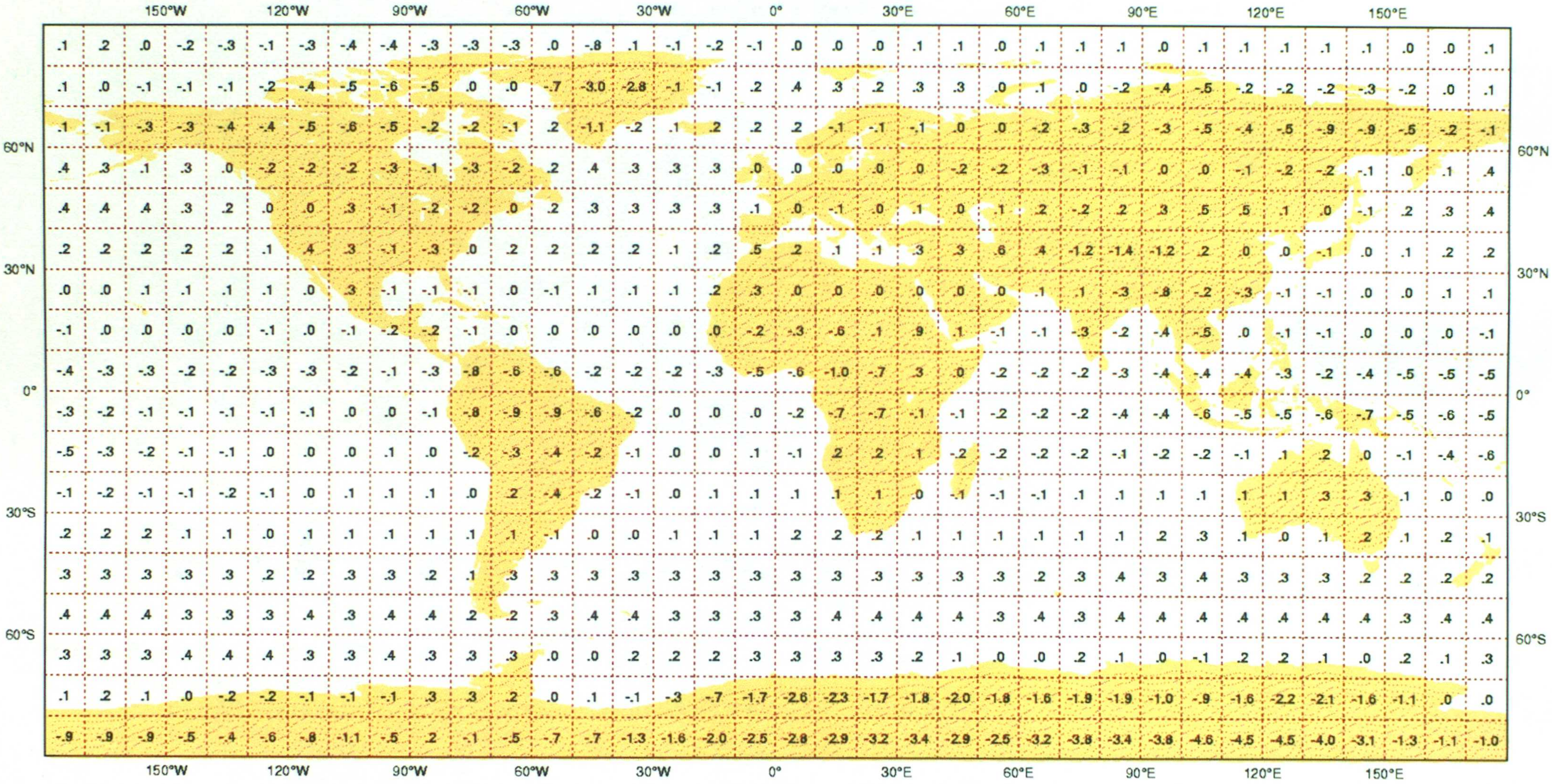
.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.2	.2	.2	.2
.1	.1	.1	.1	.1	.1	.1	.1	.1	.0	.0	.0	.0	.0	.0	.0	-.1	-.1	-.1	-.1	-.1	.0	.0	.0	.0	.0	.0	-.1	-.1	.0	.0	.0	.1	.1	.1	.1
-.1	-.1	.0	-.1	-.2	-.1	-.2	-.1	-.1	-.2	-.2	-.2	-.2	-.3	-.3	-.3	-.3	-.3	-.3	-.3	-.2	-.2	-.2	-.3	-.4	-.3	-.3	-.3	-.2	-.1	-.2	-.1	.0	.0	.0	.0
-.3	-.2	-.2	-.1	-.3	-.5	-.5	-.4	-.3	-.3	-.3	-.3	-.2	-.3	-.2	-.3	-.3	-.5	-.4	-.3	-.4	-.5	-.5	-.5	-.5	-.4	-.6	-.7	-.5	-.4	-.5	-.5	-.3	-.3	-.3	-.2
-.8	-.9	-.7	-.4	-.3	-.6	-.8	-.7	-.7	-.5	-.5	-.6	-.6	-.7	-.7	-.5	-.5	-.5	-.5	-.5	-.7	-.9	-1.1	-.6	-.3	-.7	-.8	-.8	-.8	-.7	-.8	-.8	-.7	-.6	-.5	-.8
-1.1	-1.1	-.8	-.6	-.4	-.2	-.3	-.7	-.7	-1.1	-.6	-.7	-1.2	-1.0	-.7	-.6	-.3	-.4	-.6	-.5	-.5	-.8	-.9	-.8	-.5	-1.0	-1.7	-2.0	-1.3	-.9	-.7	-.7	-.9	-.8	-1.1	-1.0
-.3	-.5	-.1	-.3	-.4	-.6	-.9	-.7	-.5	-.2	-.1	-.4	-.6	-.2	-.1	-.2	-.3	-.3	-.3	-.3	-.2	-.1	-.4	-.2	-.1	-.5	-.8	-1.2	-.7	-.5	-.3	-.7	-.4	-.3	-.1	.0
-.8	-.9	-.8	-1.1	-1.5	-1.7	-1.2	-.5	-.6	-.8	-1.2	-.8	-.3	-.2	-.2	-.4	-.6	-1.1	-1.3	-1.0	-.4	-.1	-.3	-.1	-.1	-1.4	-1.1	-.9	-1.5	.0	-.5	-2.1	-1.3	-.9	-.6	-.6
-2.2	-2.2	-2.0	-2.0	-1.5	-2.2	-2.3	-1.5	-1.3	-2.3	-4.2	-3.6	-2.6	-1.6	-1.3	-1.9	-2.2	-2.7	-3.5	-3.9	-4.4	-1.9	-1.0	-.6	-.7	-1.5	-1.7	-2.0	-1.6	-1.6	-1.6	-2.8	-4.4	-5.0	-3.9	-2.7
-2.2	-1.1	-.7	-.2	-.1	-.1	-.1	.1	.1	.0	-2.6	-4.0	-4.0	-3.4	-1.5	-.5	.0	-.1	-.7	-3.6	-3.8	-1.6	-.8	-1.0	-1.5	-1.8	-2.3	-2.7	-3.0	-2.7	-2.9	-3.6	-4.3	-4.8	-4.6	-3.4
-3.7	-2.6	-1.4	-.7	-.3	-.1	.1	.1	.0	-.1	-1.1	-2.4	-2.1	-1.1	-.2	.0	.3	.3	.2	-.3	-.4	.0	-.2	-.7	-2.7	-3.2	-1.5	-1.3	-1.4	-1.0	-1.0	-1.3	-1.2	-1.4	-3.6	-5.2
-1.7	-1.5	-1.1	-1.3	-1.9	-1.1	-.4	-.2	-.3	-.1	-.1	-.8	-1.7	-.9	-.5	-.3	.1	.2	.2	.1	-.2	.1	.0	-.5	-1.2	-.5	.1	.2	-.1	-.4	-.3	.0	.2	.2	-.3	-1.3
-.7	-.5	-.5	-.7	-1.3	-1.7	-.6	-.4	-.4	-.3	.0	-.2	-.7	-.9	-.9	-1.0	-.8	-.5	-.2	-.1	-.4	-.6	-.3	-.3	-.5	-.6	-.4	-.3	-.3	-.5	-.5	-.4	-.2	-.1	.0	-.2
-.2	-.2	-.3	-.4	-.6	-.7	-.6	-.6	-.8	-.6	-.6	-.9	-.4	-.3	-.2	-.5	-.5	-.6	-.5	-.6	-.4	-.5	-.5	-.5	-.5	-.6	-.5	-.5	-.5	-.5	-.5	-.5	-.6	-.7	-.6	-.5
-.4	-.4	-.3	-.3	-.3	-.2	-.3	-.3	-.5	-.5	-.5	-.5	-.3	-.2	-.1	-.1	-.1	-.2	-.4	-.3	-.3	-.3	-.3	-.2	-.1	-.2	-.3	-.1	-.2	-.2	-.3	-.3	-.4	-.4	-.5	-.4
-.1	-.1	-.1	-.1	-.1	-.1	-.1	-.1	-.1	-.1	-.1	-.2	-.1	-.1	-.1	.0	.0	-.2	-.3	-.2	-.2	-.2	-.2	-.2	.0	.1	.0	.0	.0	-.1	-.2	-.2	-.2	-.2	-.2	-.1
.1	.0	.0	.0	.0	.0	.0	.0	-.2	-.2	-.3	-.2	.0	.0	-.1	-.2	-.4	-.5	-.4	-.1	.0	.1	.0	.0	.0	.0	.0	.1	.1	.0	.0	.0	.1	.0	.1	.1
.1	.1	.1	.1	.1	.1	.1	-.1	-.1	.0	-.1	-.1	-.1	.0	-.1	-.2	-.2	-.2	-.2	-.1	-.1	.0	-.1	-.1	-.1	.1	-.1	-.1	-.2	.0	.0	.1	.0	.0	.0	.0

Figure 48. ATOVS SD O-B brightness temperature differences (deg C). APRIL 2005
Channel: HIRS4 (400 hPa)
NOAA16, using all observations



.9	.9	.9	.9	.9	.9	.9	.9	.9	.9	.9	.9	.9	.9	.9	.9	.9	.9	.9	.9	.9	.9	.9	.9	.9	.9	.9	.9	.9	.9	.9	.9	.9	.9	.9	.9
.9	.9	.9	.9	.9	.9	.9	.9	.9	1.0	1.1	1.1	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	.9	.9	.9	.9	.9	.9	1.0	1.0	.9	.9	.9	.9	.9	.9	.9
1.0	1.1	1.0	1.1	1.1	1.0	1.1	1.0	1.0	1.1	1.1	1.1	1.0	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.0	1.1	1.2	1.3	1.2	1.1	1.1	1.0	1.0	1.0	1.0	1.0	.9	.9	.9
1.2	1.2	1.2	1.1	1.2	1.2	1.4	1.3	1.2	1.1	1.2	1.1	1.1	1.2	1.2	1.2	1.2	1.3	1.2	1.2	1.4	1.5	1.4	1.4	1.3	1.3	1.4	1.5	1.4	1.2	1.3	1.3	1.1	1.2	1.1	1.1
1.7	1.8	1.6	1.3	1.2	1.4	1.6	1.6	1.7	1.5	1.4	1.5	1.5	1.6	1.7	1.5	1.5	1.4	1.2	1.4	1.7	2.0	2.1	1.8	1.5	1.7	1.8	1.9	1.8	1.6	1.6	1.6	1.6	1.5	1.5	1.9
2.2	2.1	1.7	1.5	1.4	1.2	1.5	1.8	1.8	2.6	1.8	1.9	2.2	2.0	1.7	1.7	1.3	1.4	1.7	1.7	1.7	2.1	2.2	2.2	1.7	2.0	2.6	2.6	2.3	2.1	1.8	1.8	1.9	1.8	2.1	2.0
1.5	1.7	1.2	1.5	1.7	1.9	2.1	1.9	1.6	1.7	1.4	1.7	1.8	1.3	1.2	1.4	1.5	1.5	1.6	1.7	1.5	1.4	1.7	1.5	1.5	1.9	2.1	2.7	2.3	1.9	1.5	2.8	1.9	1.6	1.3	1.1
2.3	2.3	2.1	2.4	2.8	3.0	2.8	2.1	2.3	2.3	2.7	2.2	1.6	1.6	1.5	1.8	2.2	3.0	2.8	2.5	2.0	1.6	2.1	1.5	1.5	3.3	2.9	2.7	3.3	1.3	2.5	4.4	3.3	2.3	2.1	2.2
3.9	3.7	3.8	3.7	3.4	4.2	4.4	3.7	3.4	4.3	5.0	4.7	4.2	3.3	3.2	3.7	4.2	4.6	5.1	5.3	5.7	3.8	3.1	2.6	2.6	3.5	3.7	4.1	3.3	3.2	3.1	4.3	5.6	5.1	5.0	4.1
3.9	2.9	2.6	1.8	1.5	1.7	1.6	1.3	1.5	1.1	4.3	5.0	4.9	4.7	3.3	2.2	1.5	1.5	2.3	5.4	5.2	3.2	2.6	3.5	3.8	4.3	4.3	4.5	4.2	4.3	4.7	5.3	5.6	5.7	5.7	4.6
5.5	4.6	3.2	2.7	2.0	1.5	1.2	1.4	1.5	1.4	2.8	3.9	3.9	2.8	1.6	1.3	1.0	1.0	1.0	2.3	2.4	1.5	1.8	2.5	4.8	6.0	3.8	3.7	3.7	2.8	3.1	3.8	3.5	3.5	5.4	6.3
3.3	3.1	2.4	2.7	3.3	2.6	1.9	1.6	1.6	1.2	1.2	2.3	3.8	2.5	2.2	1.8	1.2	1.1	1.0	1.3	1.8	1.4	1.5	2.3	3.2	2.0	1.1	1.0	1.5	2.0	1.6	1.3	1.1	1.1	2.0	3.0
2.5	1.8	1.8	2.0	2.7	2.8	2.2	1.8	1.8	1.6	1.2	1.6	2.5	2.5	2.3	2.2	2.0	1.7	1.3	1.2	1.8	2.1	1.7	1.6	2.0	1.9	1.6	1.4	1.4	1.6	1.6	1.5	1.4	1.4	1.2	1.7
1.3	1.4	1.4	1.5	1.8	1.9	1.8	1.9	2.0	1.8	1.8	2.1	1.5	1.4	1.4	1.7	1.7	1.7	1.6	1.8	1.5	1.8	1.6	1.6	1.6	1.8	1.6	1.6	1.5	1.4	1.4	1.5	1.6	1.8	1.6	2.0
1.4	1.4	1.3	1.3	1.3	1.2	1.3	1.4	1.5	1.5	1.6	1.7	1.4	1.3	1.2	1.3	1.3	1.3	1.5	1.4	1.4	1.5	1.5	1.4	1.3	1.3	1.3	1.2	1.2	1.3	1.3	1.3	1.3	1.4	1.5	1.4
1.2	1.2	1.2	1.1	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.3	1.4	1.3	1.3	1.2	1.2	1.3	1.3	1.2	1.2	1.2	1.2	1.2	1.1	1.1	1.1	1.0	1.1	1.1	1.2	1.2	1.2	1.2	1.2	1.1
1.1	1.2	1.2	1.2	1.1	1.1	1.1	1.1	1.3	1.3	1.4	1.3	1.2	1.2	1.2	1.4	1.6	1.8	1.6	1.2	1.1	1.1	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
1.0	1.0	1.0	1.1	1.1	1.1	1.1	1.1	1.2	1.1	1.2	1.2	1.2	1.2	1.2	1.3	1.4	1.5	1.4	1.2	1.1	1.1	1.1	1.0	1.0	1.0	1.1	1.1	1.1	1.1	1.0	1.0	1.1	1.1	1.1	1.0

Figure 49. ATOVS MEAN O-B brightness temperature differences (deg C). APRIL 2005
Channel: AMSUA-5 (700 hPa)
NOAA16, using all observations



.1	.2	.0	-.2	-.3	-.1	-.3	-.4	-.4	-.3	-.3	-.3	.0	-.8	.1	-.1	-.2	-.1	.0	.0	.0	.1	.1	.0	.1	.1	.1	.0	.1	.1	.1	.1	.1	.0	.0	.1
.1	.0	-.1	-.1	-.1	-.2	-.4	-.5	-.6	-.5	.0	.0	-.7	-3.0	-2.8	-.1	-.1	.2	.4	.3	.2	.3	.3	.0	.1	.0	-.2	-.4	-.5	-.2	-.2	-.2	-.3	-.2	.0	.1
.1	-.1	-.3	-.3	-.4	-.4	-.5	-.6	-.5	-.2	-.2	-.1	.2	-1.1	-.2	.1	.2	.2	.2	-.1	-.1	-.1	.0	.0	-.2	-.3	-.2	-.3	-.5	-.4	-.5	-.9	-.9	-.5	-.2	-.1
.4	.3	.1	.3	.0	-.2	-.2	-.2	-.3	-.1	-.3	-.2	.2	.4	.3	.3	.3	.0	.0	.0	.0	.0	-.2	-.2	-.3	-.1	-.1	.0	.0	-.1	-.2	-.2	-.1	.0	.1	.4
.4	.4	.4	.3	.2	.0	.0	.3	-.1	-.2	-.2	.0	.2	.3	.3	.3	.3	.1	.0	-.1	.0	.1	.0	.1	.2	-.2	.2	.3	.5	.5	.1	.0	-.1	.2	.3	.4
.2	.2	.2	.2	.2	.1	.4	.3	-.1	-.3	.0	.2	.2	.2	.2	.1	.2	.5	.2	.1	.1	.3	.3	.6	.4	-1.2	-1.4	-1.2	.2	.0	.0	-.1	.0	.1	.2	.2
.0	.0	.1	.1	.1	.1	.0	.3	-.1	-.1	-.1	.0	-.1	.1	.1	.1	.2	.3	.0	.0	.0	.0	.0	.0	.1	.1	-.3	-.8	-.2	-.3	-.1	-.1	.0	.0	.1	.1
-.1	.0	.0	.0	.0	-.1	.0	-.1	-.2	-.2	-.1	.0	.0	.0	.0	.0	.0	-.2	-.3	-.6	.1	.9	.1	-.1	-.1	-.3	-.2	-.4	-.5	.0	-.1	-.1	.0	.0	.0	-.1
-.4	-.3	-.3	-.2	-.2	-.3	-.3	-.2	-.1	-.3	-.8	-.6	-.6	-.2	-.2	-.2	-.3	-.5	-.6	-1.0	-.7	.3	.0	-.2	-.2	-.2	-.3	-.4	-.4	-.4	-.3	-.2	-.4	-.5	-.5	-.5
-.3	-.2	-.1	-.1	-.1	-.1	-.1	.0	.0	-.1	-.8	-.9	-.9	-.6	-.2	.0	.0	.0	-.2	-.7	-.7	-.1	-.1	-.2	-.2	-.2	-.4	-.4	-.6	-.5	-.5	-.6	-.7	-.5	-.6	-.5
-.5	-.3	-.2	-.1	-.1	.0	.0	.0	.1	.0	-.2	-.3	-.4	-.2	-.1	.0	.0	.1	-.1	.2	.2	.1	-.2	-.2	-.2	-.2	-.1	-.2	-.2	-.1	.1	.2	.0	-.1	-.4	-.6
-.1	-.2	-.1	-.1	-.2	-.1	.0	.1	.1	.1	.0	.2	-.4	-.2	-.1	.0	.1	.1	.1	.1	.1	.0	-.1	-.1	-.1	.1	.1	.1	.1	.1	.1	.3	.3	.1	.0	.0
.2	.2	.2	.1	.1	.0	.1	.1	.1	.1	.1	.1	-.1	.0	.0	.1	.1	.1	.2	.2	.2	.1	.1	.1	.1	.1	.1	.2	.3	.1	.0	.1	.2	.1	.2	.1
.3	.3	.3	.3	.3	.2	.2	.3	.3	.2	.1	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.2	.3	.4	.3	.4	.3	.3	.3	.2	.2	.2	.2
.4	.4	.4	.3	.3	.3	.4	.3	.4	.4	.2	.2	.3	.4	.4	.3	.3	.3	.3	.4	.4	.4	.4	.3	.4	.3	.4	.4	.4	.4	.4	.4	.4	.3	.4	.4
.3	.3	.3	.4	.4	.4	.3	.3	.4	.3	.3	.3	.0	.0	.2	.2	.2	.3	.3	.3	.3	.2	.1	.0	.0	.2	.1	.0	-.1	.2	.2	.1	.0	.2	.1	.3
.1	.2	.1	.0	-.2	-.2	-.1	-.1	-.1	.3	.3	.2	.0	.1	-.1	-.3	-.7	-1.7	-2.6	-2.3	-1.7	-1.8	-2.0	-1.8	-1.6	-1.9	-1.9	-1.0	-.9	-1.6	-2.2	-2.1	-1.6	-1.1	.0	.0
-.9	-.9	-.9	-.5	-.4	-.6	-.8	-1.1	-.5	.2	-.1	-.5	-.7	-.7	-1.3	-1.6	-2.0	-2.5	-2.8	-2.9	-3.2	-3.4	-2.9	-2.5	-3.2	-3.8	-3.4	-3.8	-4.6	-4.5	-4.5	-4.0	-3.1	-1.3	-1.1	-1.0

Figure 50. ATOVS SD O-B brightness temperature differences (deg C). APRIL 2005
Channel: AMSUA-5 (700 hPa)
NOAA16, using all observations

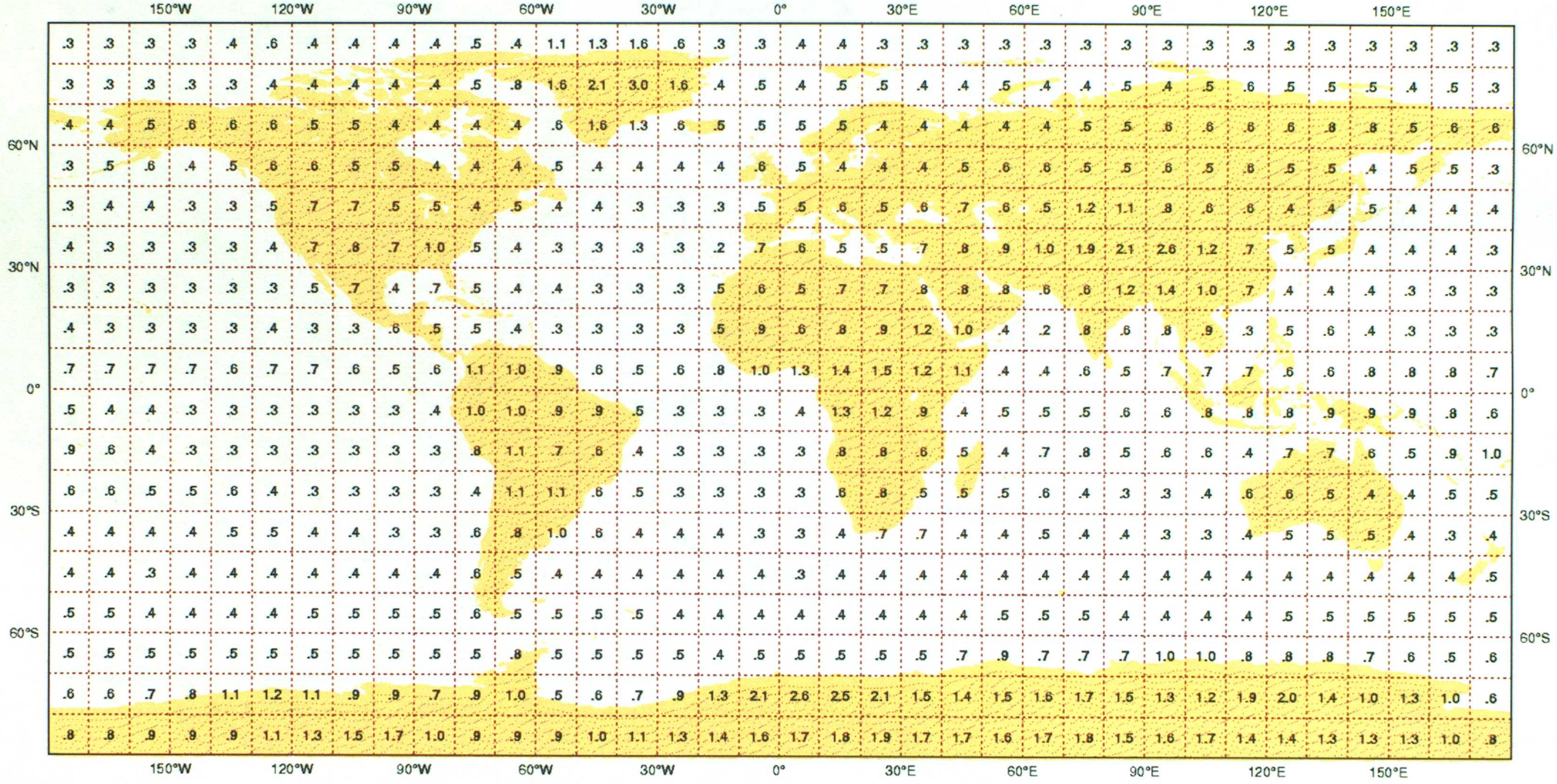
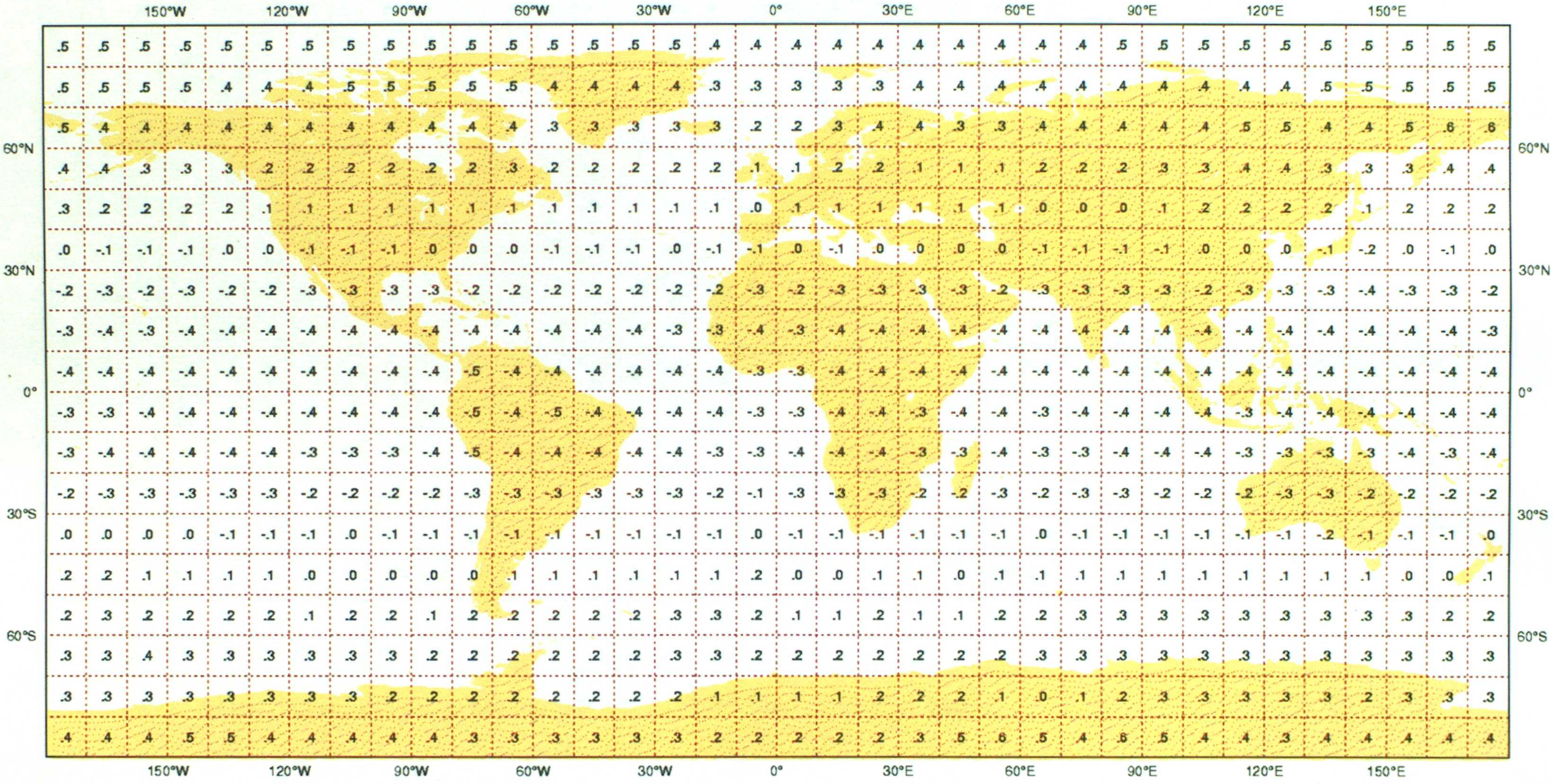

150°W
120°W
90°W
60°W
30°W
0°
30°E
60°E
90°E
120°E
150°E
60°N
30°N
0°
30°S
60°S
.3 .3 .3 .3 .4 .6 .4 .4 .4 .4 .5 .4 1.1 1.3 1.6 .6 .3 .3 .4 .4 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3
.3 .3 .3 .3 .3 .4 .4 .4 .4 .4 .5 .8 1.6 2.1 3.0 1.6 .4 .5 .4 .5 .5 .4 .4 .5 .4 .4 .5 .4 .5 .6 .5 .5 .5 .4 .5 .3
.4 .4 .5 .6 .6 .6 .5 .5 .4 .4 .4 .4 .6 1.6 1.3 .6 .5 .5 .5 .5 .4 .4 .4 .4 .4 .5 .5 .6 .6 .6 .6 .8 .8 .5 .6 .6
.3 .5 .6 .4 .5 .6 .6 .5 .5 .4 .4 .4 .5 .4 .4 .4 .4 .6 .5 .4 .4 .4 .5 .6 .6 .5 .5 .6 .5 .6 .5 .5 .4 .5 .5 .3
.3 .4 .4 .3 .3 .5 .7 .7 .5 .5 .4 .5 .4 .4 .3 .3 .3 .5 .5 .6 .5 .6 .7 .6 .5 1.2 1.1 .8 .6 .6 .4 .4 .5 .4 .4 .4
.4 .3 .3 .3 .3 .4 .7 .8 .7 1.0 .5 .4 .3 .3 .3 .3 .2 .7 .6 .5 .5 .7 .8 .9 1.0 1.9 2.1 2.6 1.2 .7 .5 .5 .4 .4 .4 .3
.3 .3 .3 .3 .3 .3 .5 .7 .4 .7 .5 .4 .4 .3 .3 .3 .5 .6 .5 .7 .7 .8 .8 .8 .6 .6 1.2 1.4 1.0 .7 .4 .4 .4 .3 .3 .3
.4 .3 .3 .3 .3 .4 .3 .3 .6 .5 .5 .4 .3 .3 .3 .3 .5 .9 .6 .8 .9 1.2 1.0 .4 .2 .8 .6 .8 .9 .3 .5 .6 .4 .3 .3 .3
.7 .7 .7 .7 .6 .7 .7 .6 .5 .6 1.1 1.0 .9 .6 .5 .6 .8 1.0 1.3 1.4 1.5 1.2 1.1 .4 .4 .6 .5 .7 .7 .7 .6 .6 .8 .8 .8 .7
.5 .4 .4 .3 .3 .3 .3 .3 .3 .4 1.0 1.0 .9 .9 .5 .3 .3 .3 .4 1.3 1.2 .9 .4 .5 .5 .5 .6 .6 .8 .8 .8 .9 .9 .9 .8 .6
.9 .6 .4 .3 .3 .3 .3 .3 .3 .3 .8 1.1 .7 .6 .4 .3 .3 .3 .3 .8 .8 .6 .5 .4 .7 .8 .5 .6 .6 .4 .7 .7 .6 .5 .9 1.0
.6 .6 .5 .5 .6 .4 .3 .3 .3 .3 .4 1.1 1.1 .6 .5 .3 .3 .3 .3 .6 .8 .5 .5 .5 .6 .4 .3 .3 .4 .6 .6 .5 .4 .4 .5 .5
.4 .4 .4 .4 .5 .5 .4 .4 .3 .3 .6 .8 1.0 .6 .4 .4 .4 .3 .3 .4 .7 .7 .4 .4 .5 .4 .4 .3 .3 .4 .5 .5 .5 .4 .3 .4
.4 .4 .3 .4 .4 .4 .4 .4 .4 .4 .6 .5 .4 .4 .4 .4 .4 .4 .3 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .5
.5 .5 .4 .4 .4 .4 .5 .5 .5 .5 .6 .5 .5 .5 .5 .4 .4 .4 .4 .4 .4 .4 .4 .5 .5 .5 .4 .4 .4 .4 .5 .5 .5 .5 .5 .5
.5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .8 .5 .5 .5 .5 .4 .5 .5 .5 .5 .5 .7 .9 .7 .7 .7 1.0 1.0 .8 .8 .8 .7 .6 .5 .6
.6 .6 .7 .8 1.1 1.2 1.1 .9 .9 .7 .9 1.0 .5 .6 .7 .9 1.3 2.1 2.6 2.5 2.1 1.5 1.4 1.5 1.6 1.7 1.5 1.3 1.2 1.9 2.0 1.4 1.0 1.3 1.0 .6
.8 .8 .9 .9 .9 1.1 1.3 1.5 1.7 1.0 .9 .9 .9 1.0 1.1 1.3 1.4 1.6 1.7 1.8 1.9 1.7 1.7 1.6 1.7 1.8 1.5 1.6 1.7 1.4 1.4 1.3 1.3 1.3 1.0 .8

Figure 51. ATOVS MEAN O-B brightness temperature differences (deg C). APRIL 2005
Channel: AMSUA-7 (300 hPa)
NOAA16, using all observations



.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5
.5	.5	.5	.5	.4	.4	.4	.5	.5	.5	.5	.5	.4	.4	.4	.4	.3	.3	.3	.3	.3	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.5	.5	.5	.5	.5
.5	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.3	.3	.3	.3	.3	.2	.2	.3	.4	.4	.3	.3	.4	.4	.4	.4	.4	.5	.5	.4	.4	.5	.6	.6
.4	.4	.3	.3	.3	.2	.2	.2	.2	.2	.2	.3	.2	.2	.2	.2	.2	.1	.1	.2	.2	.1	.1	.1	.2	.2	.2	.3	.3	.4	.4	.3	.3	.3	.4	.4
.3	.2	.2	.2	.2	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.0	.1	.1	.1	.1	.1	.1	.0	.0	.0	.1	.2	.2	.2	.2	.1	.2	.2	.2
.0	-.1	-.1	-.1	.0	.0	-.1	-.1	-.1	.0	.0	.0	-.1	-.1	-.1	.0	-.1	-.1	.0	-.1	.0	.0	.0	.0	-.1	-.1	-.1	-.1	.0	.0	.0	-.1	-.2	.0	-.1	.0
-.2	-.3	-.2	-.3	-.2	-.2	-.3	-.3	-.3	-.3	-.2	-.2	-.2	-.2	-.2	-.2	-.2	-.3	-.2	-.3	-.3	-.3	-.3	-.2	-.3	-.3	-.3	-.3	-.2	-.3	-.3	-.3	-.4	-.3	-.3	-.2
-.3	-.4	-.3	-.4	-.4	-.4	-.4	-.4	-.4	-.4	-.4	-.4	-.4	-.4	-.4	-.3	-.3	-.4	-.3	-.4	-.4	-.4	-.4	-.4	-.4	-.4	-.4	-.4	-.4	-.4	-.4	-.4	-.4	-.4	-.4	-.3
-.4	-.4	-.4	-.4	-.4	-.4	-.4	-.4	-.4	-.4	-.5	-.4	-.4	-.4	-.4	-.4	-.4	-.3	-.3	-.4	-.4	-.4	-.4	-.4	-.4	-.4	-.4	-.4	-.4	-.4	-.4	-.4	-.4	-.4	-.4	-.4
-.3	-.3	-.4	-.4	-.4	-.4	-.4	-.4	-.4	-.4	-.5	-.4	-.5	-.4	-.4	-.4	-.4	-.3	-.3	-.4	-.4	-.3	-.4	-.4	-.3	-.4	-.4	-.4	-.4	-.3	-.4	-.4	-.4	-.4	-.4	-.4
-.3	-.4	-.4	-.4	-.4	-.4	-.3	-.3	-.3	-.4	-.5	-.4	-.4	-.4	-.4	-.4	-.3	-.3	-.4	-.4	-.4	-.3	-.3	-.4	-.3	-.3	-.4	-.4	-.4	-.3	-.3	-.3	-.3	-.4	-.3	-.4
-.2	-.3	-.3	-.3	-.3	-.3	-.2	-.2	-.2	-.2	-.3	-.3	-.3	-.3	-.3	-.3	-.2	-.1	-.3	-.3	-.3	-.2	-.2	-.3	-.2	-.3	-.3	-.2	-.2	-.2	-.3	-.3	-.2	-.2	-.2	-.2
.0	.0	.0	.0	-.1	-.1	-.1	.0	-.1	-.1	-.1	-.1	-.1	-.1	-.1	-.1	-.1	.0	-.1	-.1	-.1	-.1	-.1	-.1	.0	-.1	-.1	-.1	-.1	-.1	-.1	-.2	-.1	-.1	-.1	.0
.2	.2	.1	.1	.1	.1	.0	.0	.0	.0	.0	.1	.1	.1	.1	.1	.1	.2	.0	.0	.1	.1	.0	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.0	.0	.1
.2	.3	.2	.2	.2	.2	.1	.2	.2	.1	.2	.2	.2	.2	.2	.3	.3	.2	.1	.1	.2	.1	.1	.2	.2	.3	.3	.3	.3	.3	.3	.3	.3	.3	.2	.2
.3	.3	.4	.3	.3	.3	.3	.3	.3	.2	.2	.2	.2	.2	.2	.3	.3	.2	.2	.2	.2	.2	.2	.2	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3
.3	.3	.3	.3	.3	.3	.3	.3	.2	.2	.2	.2	.2	.2	.2	.2	.1	.1	.1	.1	.2	.2	.2	.1	.0	.1	.2	.3	.3	.3	.3	.3	.2	.3	.3	.3
.4	.4	.4	.5	.5	.4	.4	.4	.4	.4	.3	.3	.3	.3	.3	.3	.2	.2	.2	.2	.2	.3	.5	.6	.5	.4	.6	.5	.4	.4	.3	.4	.4	.4	.4	.4

Figure 52. ATOVS SD O-B brightness temperature differences (deg C). APRIL 2005
Channel: AMSUA-7 (300 hPa)
NOAA16, using all observations

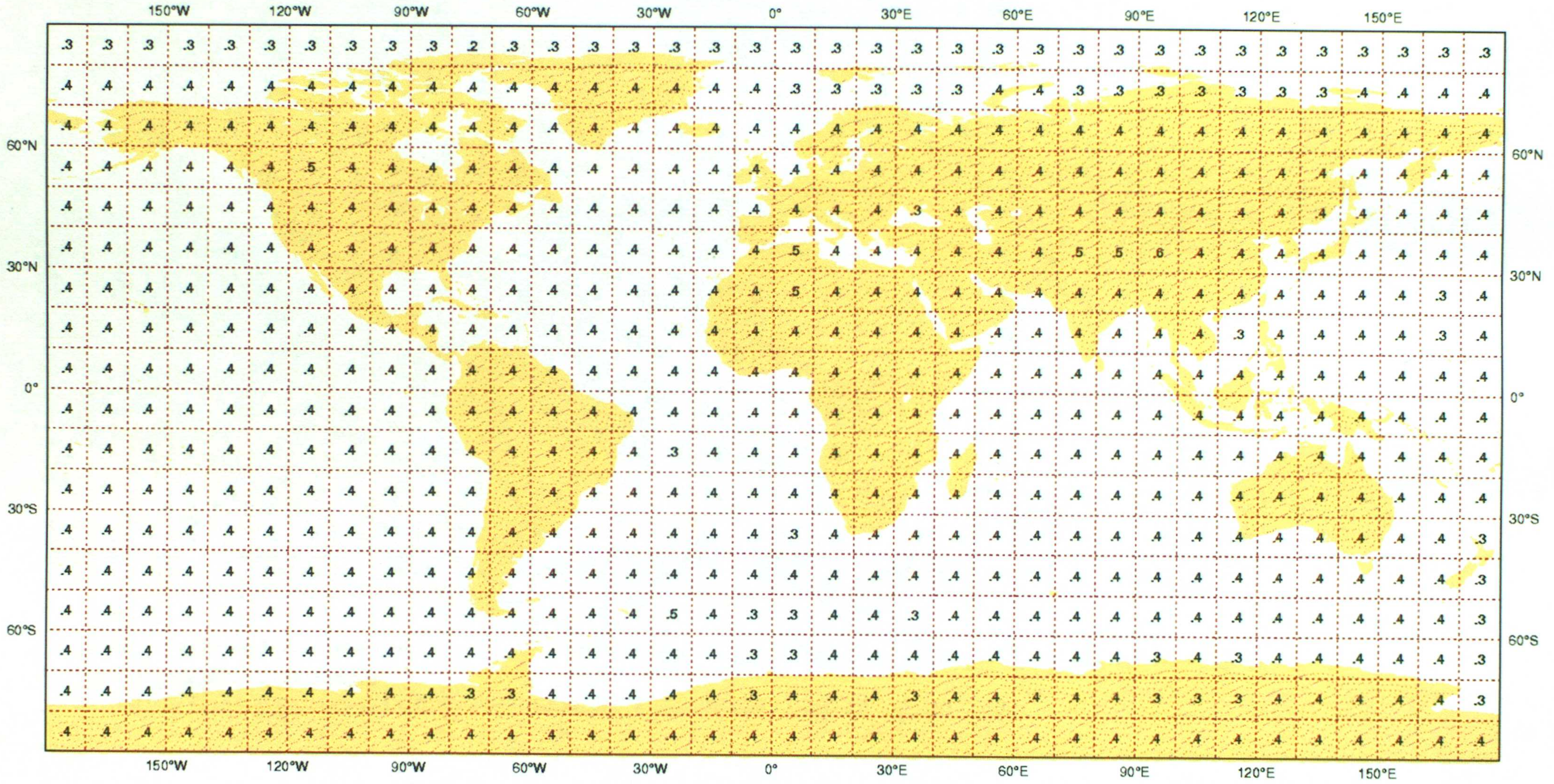
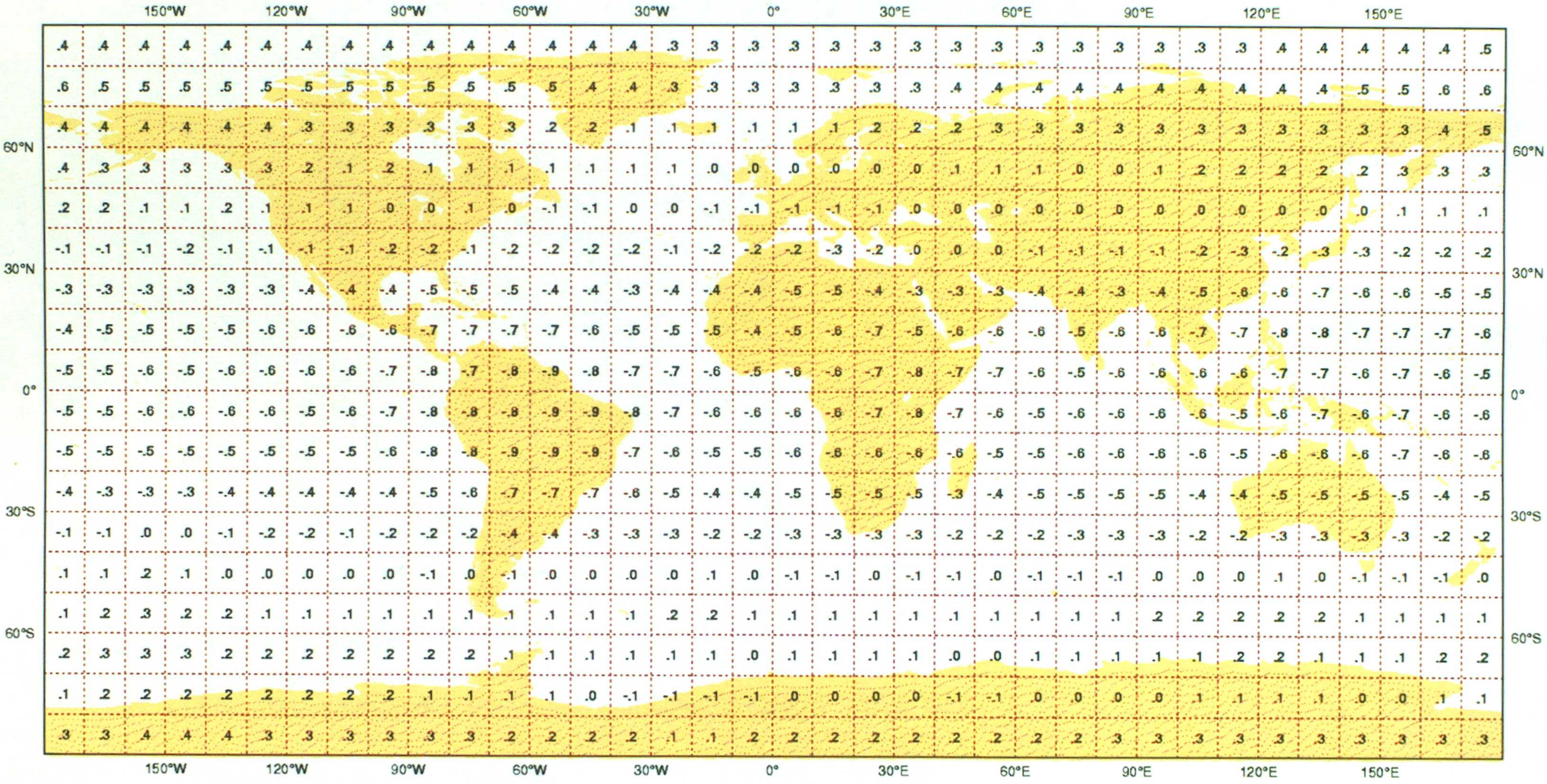
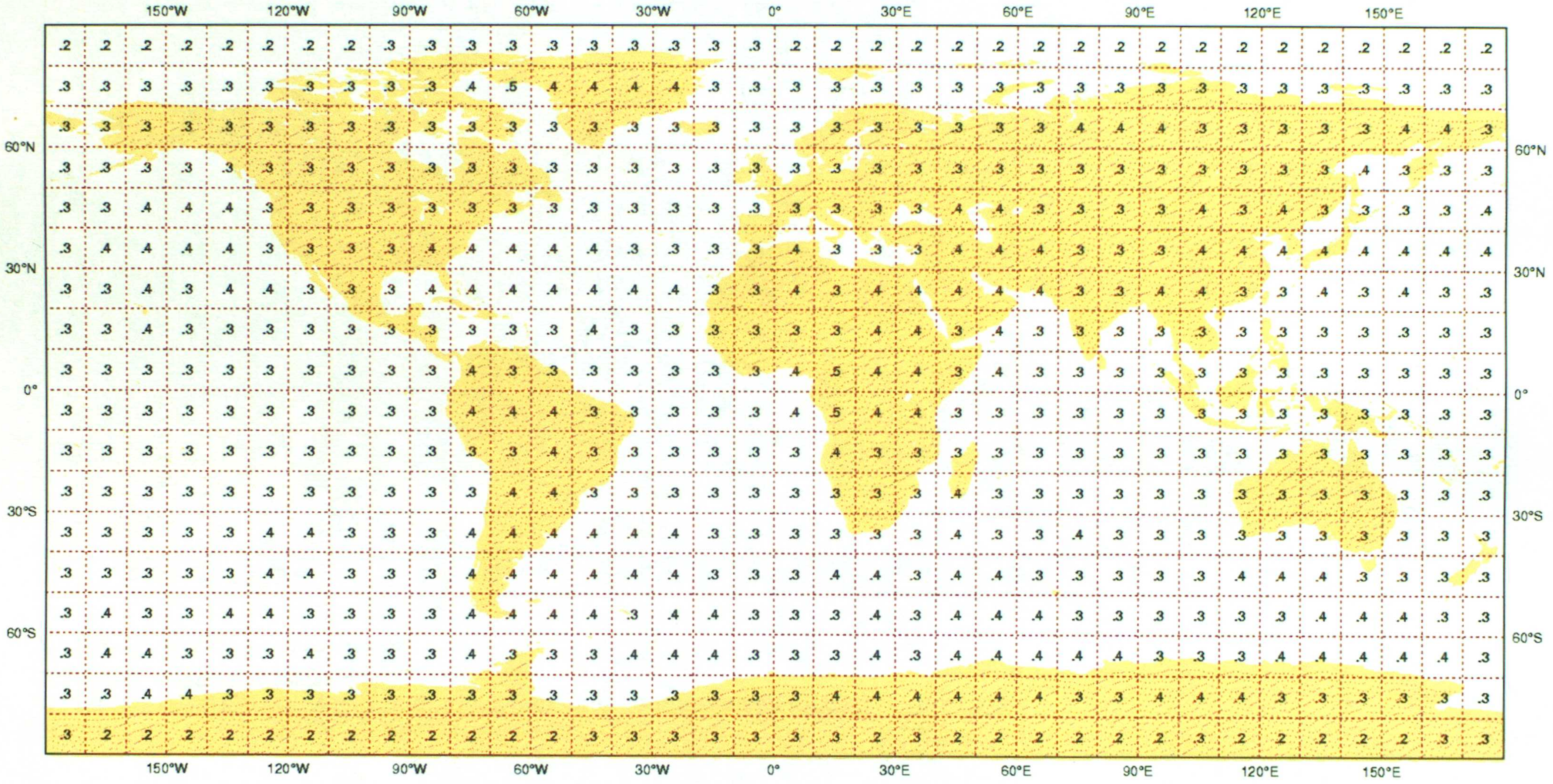

150°W
120°W
90°W
60°W
30°W
0°
30°E
60°E
90°E
120°E
150°E
60°N
30°N
0°
30°S
60°S

Figure 53. ATOVS MEAN O-B brightness temperature differences (deg C). APRIL 2005
Channel: AMSUA-9 (100 hPa)
NOAA16, using all observations



.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.4	.4	.4	.4	.4	.5
.6	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.4	.4	.3	.3	.3	.3	.3	.3	.3	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.5	.5	.6	.6
.4	.4	.4	.4	.4	.4	.3	.3	.3	.3	.3	.3	.2	.2	.1	.1	.1	.1	.1	.1	.2	.2	.2	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.4	.5
.4	.3	.3	.3	.3	.3	.2	.1	.2	.1	.1	.1	.1	.1	.1	.1	.0	.0	.0	.0	.0	.0	.1	.1	.1	.0	.0	.1	.2	.2	.2	.2	.2	.3	.3	.3
.2	.2	.1	.1	.2	.1	.1	.1	.0	.0	.1	.0	-.1	-.1	.0	.0	-.1	-.1	-.1	-.1	-.1	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.1	.1	.1
-.1	-.1	-.1	-.2	-.1	-.1	-.1	-.1	-.2	-.2	-.1	-.2	-.2	-.2	-.2	-.1	-.2	-.2	-.2	-.3	-.2	.0	.0	.0	-.1	-.1	-.1	-.1	-.2	-.3	-.2	-.3	-.3	-.2	-.2	-.2
-.3	-.3	-.3	-.3	-.3	-.3	-.4	-.4	-.4	-.5	-.5	-.5	-.4	-.4	-.3	-.4	-.4	-.4	-.5	-.5	-.4	-.3	-.3	-.3	-.4	-.4	-.3	-.4	-.5	-.6	-.6	-.7	-.6	-.6	-.5	-.5
-.4	-.5	-.5	-.5	-.5	-.6	-.6	-.6	-.6	-.7	-.7	-.7	-.7	-.6	-.5	-.5	-.5	-.4	-.5	-.6	-.7	-.5	-.6	-.6	-.6	-.5	-.6	-.6	-.7	-.7	-.8	-.8	-.7	-.7	-.7	-.6
-.5	-.5	-.6	-.5	-.6	-.6	-.6	-.6	-.7	-.8	-.7	-.8	-.9	-.8	-.7	-.7	-.6	-.5	-.6	-.6	-.7	-.8	-.7	-.7	-.6	-.5	-.6	-.6	-.6	-.6	-.7	-.7	-.6	-.7	-.6	-.5
-.5	-.5	-.6	-.6	-.6	-.6	-.5	-.6	-.7	-.8	-.8	-.8	-.9	-.9	-.8	-.7	-.6	-.6	-.6	-.6	-.7	-.8	-.7	-.6	-.5	-.6	-.6	-.6	-.6	-.5	-.6	-.7	-.6	-.7	-.6	-.6
-.5	-.5	-.5	-.5	-.5	-.5	-.5	-.5	-.6	-.8	-.8	-.9	-.9	-.9	-.7	-.6	-.5	-.5	-.6	-.6	-.6	-.6	-.6	-.5	-.5	-.6	-.6	-.6	-.6	-.5	-.6	-.6	-.6	-.7	-.6	-.6
-.4	-.3	-.3	-.3	-.4	-.4	-.4	-.4	-.4	-.5	-.6	-.7	-.7	-.7	-.6	-.5	-.4	-.4	-.5	-.5	-.5	-.5	-.3	-.4	-.5	-.5	-.5	-.5	-.4	-.4	-.5	-.5	-.5	-.5	-.4	-.5
-.1	-.1	.0	.0	-.1	-.2	-.2	-.1	-.2	-.2	-.2	-.4	-.4	-.3	-.3	-.3	-.2	-.2	-.3	-.3	-.3	-.3	-.2	-.2	-.2	-.3	-.3	-.3	-.2	-.2	-.3	-.3	-.3	-.3	-.2	-.2
.1	.1	.2	.1	.0	.0	.0	.0	.0	-.1	.0	-.1	.0	.0	.0	.0	.1	.0	-.1	-.1	.0	-.1	-.1	.0	-.1	-.1	-.1	.0	.0	.0	.1	.0	-.1	-.1	-.1	.0
.1	.2	.3	.2	.2	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.2	.2	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.2	.2	.2	.2	.2	.1	.1	.1	.1
.2	.3	.3	.3	.2	.2	.2	.2	.2	.2	.2	.1	.1	.1	.1	.1	.1	.0	.1	.1	.1	.1	.0	.0	.1	.1	.1	.1	.1	.2	.2	.1	.1	.1	.2	.2
.1	.2	.2	.2	.2	.2	.2	.2	.2	.1	.1	.1	.1	.0	-.1	-.1	-.1	-.1	.0	.0	.0	.0	-.1	-.1	.0	.0	.0	.0	.1	.1	.1	.1	.0	.0	.1	.1
.3	.3	.4	.4	.4	.3	.3	.3	.3	.3	.3	.2	.2	.2	.2	.1	.1	.2	.2	.2	.2	.2	.2	.2	.2	.2	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3

Figure 54. ATOVS SD O-B brightness temperature differences (deg C). APRIL 2005
Channel: AMSUA-9 (100 hPa)
NOAA16, using all observations



.2	.2	.2	.2	.2	.2	.2	.2	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2
.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.4	.5	.4	.4	.4	.4	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3
.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.4	.4	.4	.3	.3	.3	.3	.3	.4	.4	.3
.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.4	.3	.3	.3
.3	.3	.4	.4	.4	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.4	.4	.3	.3	.3	.3	.4	.3	.4	.3	.3	.3	.3	.4
.3	.4	.4	.4	.4	.3	.3	.3	.3	.4	.4	.4	.4	.4	.3	.3	.3	.3	.4	.3	.3	.3	.4	.4	.4	.3	.3	.3	.4	.4	.4	.4	.4	.4	.4	.4
.3	.3	.4	.3	.4	.4	.3	.3	.3	.4	.4	.4	.4	.4	.4	.4	.3	.3	.4	.3	.4	.4	.4	.4	.4	.3	.3	.4	.4	.3	.3	.4	.3	.4	.3	.3
.3	.3	.4	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.4	.3	.3	.3	.3	.3	.3	.4	.4	.3	.4	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3
.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.4	.3	.3	.3	.3	.3	.3	.3	.4	.5	.4	.4	.3	.4	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3
.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.4	.4	.4	.3	.3	.3	.3	.3	.4	.5	.4	.4	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3
.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.4	.3	.3	.3	.3	.3	.3	.4	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3
.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.4	.4	.3	.3	.3	.3	.3	.3	.3	.3	.3	.4	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3
.3	.3	.3	.3	.3	.4	.4	.3	.3	.3	.4	.4	.4	.4	.4	.4	.3	.3	.3	.3	.3	.3	.4	.3	.3	.4	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3
.3	.3	.3	.3	.3	.4	.4	.3	.3	.3	.4	.4	.4	.4	.4	.4	.3	.3	.3	.4	.4	.3	.4	.4	.3	.3	.3	.3	.3	.4	.4	.4	.3	.3	.3	.3
.3	.4	.3	.3	.4	.4	.3	.3	.3	.3	.4	.4	.4	.4	.3	.4	.4	.3	.3	.3	.4	.3	.4	.4	.4	.3	.3	.3	.3	.3	.3	.4	.4	.4	.3	.3
.3	.4	.4	.3	.3	.3	.4	.3	.3	.3	.4	.3	.3	.3	.4	.4	.4	.3	.3	.3	.4	.3	.4	.4	.4	.4	.4	.3	.3	.3	.4	.4	.4	.4	.4	.3
.3	.3	.4	.4	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.4	.4	.4	.4	.4	.4	.3	.3	.4	.4	.4	.3	.3	.3	.3	.3	.3
.3	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.3	.3	.3	.3	.3	.3	.3	.2	.3	.2	.2	.2	.2	.2	.2	.3	.2	.2	.2	.2	.2	.3	.3

TABLE 8

MONTHLY MONITORING OF MARINE SURFACE OBSERVATIONS (COSNA)
DATA TYPE:- DRIFTER
MONITORING CENTRE: EXETER
MONTH: Apr 2005

Monitoring procedures		
Period		:One calendar month.
Data monitored		:Reports from each unique identifier for drifting buoy.
Area monitored		:10°N - 80°N, 85°W - 0°W
Standard of comparison		:Background field from UKMO global model.
Position		:Average latitude and longitude for period.
Observation times		:All hours combined.
Elements monitored		:Mean sea-level pressure (hPa) :Wind speed (m s^{-1}) :Wind direction (degrees)
Parameters monitored		
	:NOBS	:Number of observations received excluding duplicates.
	:NGE	:Number of observations with gross errors.
	:PGE	:Percentage of observations with gross errors.
	:SD	:SD of difference of observations from background values excluding those with gross errors.
	:BIAS	:Mean difference of observations from background values excluding those with gross errors. **N.B. A positive bias indicates the wind observation is veered to the background**
	:RMS	:Root Mean Square difference of observations from background values excluding those with gross errors

GROSS ERROR LIMITS :15 hPa (pressure)
:25 m s^{-1} (Vector Wind)

N.B. Observations of wind direction are only included in the wind direction statistics if the observed OR background wind speed > 5 m s^{-1}

IDENTIFIER	LAT.	LONG.	ELEM	NOBS	PGE	%REJ	SD	BIAS	RMS
13534	38.6	-30.1	P	719	0	1	0.6	-0.1	0.6
26505	67.4	-25.9	P	73	1	19	4.2	0.4	4.2
41521	18.0	-67.9	P	482	0	70	0.7	-0.9	1.2
41539	24.3	-69.4	P	734	0	5	0.5	1.5	1.6
41540	41.6	-43.3	P	569	0	4	0.7	1.0	1.2
41542	26.2	-68.9	P	708	0	4	0.5	0.3	0.6
41543	22.6	-67.8	P	710	0	4	0.6	0.0	0.6
41544	21.3	-60.5	P	710	0	4	0.5	0.3	0.6
41545	25.0	-65.9	P	719	0	4	0.5	0.6	0.8
41546	18.9	-76.8	P	1362	0	50	0.7	0.9	1.2
41663	17.3	-62.7	P	1695	0	100	0.9	-1.8	2.0
41921	27.3	-75.0	P	515	2	100	2.5	6.1	6.6
41924	24.3	-72.4	P	279	3	97	2.7	7.9	8.4
41925	21.1	-73.4	P	489	0	25	1.1	0.0	1.1
41927	26.1	-68.7	P	551	1	30	0.8	-0.2	0.9
41929	28.2	-67.9	P	655	0	36	0.5	0.3	0.6
41931	34.4	-71.0	P	519	0	29	0.8	0.1	0.8
41932	18.8	-68.1	P	477	0	30	0.6	0.0	0.6
41934	26.0	-68.7	P	639	0	35	0.7	-0.8	1.0
41935	25.7	-69.9	P	562	0	30	0.8	-0.4	0.9
41939	33.2	-54.5	P	603	0	100	1.4	-3.9	4.1
44549	52.2	-35.8	P	633	0	2	0.6	0.0	0.6
44550	48.6	-32.5	P	638	0	1	0.5	0.0	0.5
44601	51.7	-44.2	P	674	0	3	0.9	-0.1	1.0
44607	41.2	-42.8	P	742	0	4	0.6	-0.1	0.6
44608	41.6	-41.2	P	1098	0	35	0.6	-0.2	0.6
44609	50.7	-43.3	P	644	0	1	0.8	-0.2	0.8
44610	55.5	-39.3	P	701	0	1	0.8	-0.3	0.8
44611	52.3	-37.1	P	698	0	1	0.5	-0.1	0.5
44612	59.8	-18.9	P	662	0	2	0.6	0.2	0.6
44615	45.6	-50.1	P	715	0	1	0.6	0.2	0.6
44623	24.2	-48.1	P	248	0	16	0.5	0.1	0.5
44627	43.6	-24.7	P	662	0	2	0.5	-0.4	0.7
44628	30.5	-25.1	P	667	0	1	0.4	-0.2	0.5
44635	43.9	-54.3	P	58	0	14	0.5	0.5	0.7
44722	45.8	-35.8	P	694	0	1	0.5	-0.2	0.5
44723	61.9	-31.6	P	720	0	2	0.6	0.1	0.7
44725	54.7	-44.9	P	705	0	1	0.6	0.5	0.7
44726	49.6	-48.5	P	706	0	1	0.6	-0.2	0.6
44727	47.8	-36.6	P	721	0	2	0.6	-0.1	0.6
44728	43.5	-45.3	P	712	0	2	0.7	0.3	0.7
44729	46.4	-53.3	P	715	0	1	1.0	-0.4	1.1
44743	44.0	-12.7	P	584	0	2	0.4	0.0	0.4
44745	48.0	-7.2	P	716	0	2	0.5	-0.2	0.5
44775	56.5	-24.5	P	828	1	53	0.7	-0.1	0.7
44777	21.9	-53.8	P	573	0	36	0.5	0.0	0.5
44778	33.4	-32.2	P	638	0	43	0.6	0.1	0.6
44840	57.7	-34.5	P	5	0	0	0.1	-0.4	0.4
44842	59.7	-30.9	P	144	0	10	0.7	0.2	0.7
44843	62.3	-26.9	P	144	0	10	0.7	-0.2	0.7
44844	55.0	-37.8	P	147	0	12	0.8	-0.2	0.9
44845	46.4	-47.9	P	174	0	56	0.4	-0.1	0.4
44846	45.6	-36.8	P	147	0	12	0.4	-0.3	0.5
44847	43.0	-43.4	P	144	0	10	0.5	-0.3	0.6
44848	44.5	-43.7	P	145	0	11	0.4	-0.4	0.5
56527	26.7	-82.0	P	1	100	100			
56539	26.7	-82.0	P	2	50	50	0.0	-0.3	0.3
62501	45.5	-6.0	P	562	0	1	0.5	0.2	0.5
62510	38.0	-21.2	P	724	0	2	0.5	0.2	0.6
62511	48.1	-13.9	P	621	0	0	0.8	0.6	0.9

IDENTIFIER	LAT.	LONG.	ELEM	NOBS	PGE	%REJ	SD	BIAS	RMS
62512	42.8	-16.9	P	703	0	1	0.5	0.0	0.6
62513	50.5	-28.4	P	718	0	1	0.6	-0.2	0.6
62514	62.1	-28.2	P	700	0	2	0.6	0.1	0.6
62556	34.6	-20.8	P	720	0	3	0.6	-0.1	0.6
62557	32.7	-15.2	P	706	0	1	0.4	0.0	0.4
62560	45.1	-16.5	P	608	0	4	0.5	0.6	0.8
62562	51.9	-16.9	P	648	0	12	0.6	0.7	1.0
62563	54.6	-11.6	P	702	0	2	0.5	-0.1	0.5
62564	44.1	-23.3	P	717	0	2	0.5	0.5	0.7
62566	58.6	-16.4	P	703	0	1	0.8	-0.1	0.8
62567	47.9	-17.0	P	663	0	1	0.5	-0.2	0.6
62694	51.5	-10.6	P	513	0	1	1.0	0.2	1.0
62901	48.9	-25.4	P	149	0	15	0.5	0.1	0.5
62907	46.8	-6.2	P	106	0	7	0.5	0.0	0.5
62908	46.8	-5.5	P	113	0	7	0.6	0.1	0.6
62910	45.3	-5.7	P	88	0	6	0.7	0.2	0.7
62926	44.9	-6.3	P	126	0	2	0.6	-0.1	0.6
62927	48.4	-4.5	P	6	0	100	0.2	-6.7	6.7
62929	45.3	-5.9	P	73	0	3	0.5	-0.1	0.5
62930	44.9	-6.2	P	114	0	8	0.7	0.0	0.7
62931	44.4	-5.8	P	187	0	9	0.6	-0.1	0.6
62934	48.8	-20.9	P	140	0	10	0.4	-0.2	0.5
64609	63.4	-34.2	P	713	0	2	0.8	-0.1	0.8
64610	62.7	-8.6	P	627	0	1	0.6	0.0	0.6
64611	64.4	-28.6	P	699	0	1	0.8	-0.3	0.9
64612	59.8	-24.2	P	720	0	2	0.7	-0.7	0.9
65601	62.1	-34.3	P	149	0	60	1.0	0.1	1.0
65602	60.5	-39.9	P	259	0	44	0.8	-0.3	0.9

IDENTIFIER	LAT.	LONG.	ELEM	NOBS	PGE	%REJ	SD	BIAS	RMS
41539	24.3	-69.4	SPEED	563	0	100	3.9	-0.5	4.0
41542	26.2	-68.9	SPEED	681	0	100	1.6	-0.5	1.7
41543	22.6	-67.8	SPEED	680	0	100	1.7	-1.5	2.2
41544	21.3	-60.5	SPEED	689	0	100	1.7	-1.1	2.1
41545	25.0	-65.9	SPEED	697	0	100	1.4	-1.4	2.0
41921	27.3	-75.0	SPEED	483	1	100	2.8	-5.0	5.7
41924	24.3	-72.4	SPEED	14	36	100	6.4	8.2	10.4
41925	21.1	-73.4	SPEED	476	0	100	3.4	-4.4	5.5
41927	26.1	-68.7	SPEED	6	33	100	5.3	-1.5	5.5
41929	28.2	-67.9	SPEED	7	14	100	8.3	4.9	9.7
41931	34.4	-71.0	SPEED	8	50	100	8.6	8.5	12.1
41934	26.0	-68.7	SPEED	4	75	100	0.0	17.6	17.6
41935	25.7	-69.9	SPEED	4	25	100	3.0	9.6	10.1
41939	33.2	-54.5	SPEED	3	33	100	9.3	10.2	13.8
62511	48.1	-13.9	SPEED	542	0	100	2.3	2.3	3.2
62566	58.6	-16.4	SPEED	560	0	100	2.3	0.1	2.3

IDENTIFIER	LAT.	LONG.	ELEM	NOBS	PGE	%REJ	SD	BIAS	RMS
41539	24.3	-69.4	DIRN.	161	0	0	17.8	3.1	18.1
41542	26.2	-68.9	DIRN.	394	0	0	25.0	20.3	32.2
41543	22.6	-67.8	DIRN.	291	0	0	13.6	-0.2	13.6
41544	21.3	-60.5	DIRN.	210	0	0	17.0	9.4	19.4
41545	25.0	-65.9	DIRN.	266	0	0	20.3	-2.5	20.4
41921	27.3	-75.0	DIRN.	11	27	0	42.0	60.6	73.7
41924	24.3	-72.4	DIRN.	10	50	0	58.9	3.0	59.0
41925	21.1	-73.4	DIRN.	9	22	0	76.6	13.7	77.8
41927	26.1	-68.7	DIRN.	4	50	0	35.7	-8.6	36.7
41929	28.2	-67.9	DIRN.	4	25	0	16.3	43.7	46.6
41931	34.4	-71.0	DIRN.	8	50	0	81.7	-19.7	84.1
41934	26.0	-68.7	DIRN.	4	75	0	0.0	-33.5	33.5
41935	25.7	-69.9	DIRN.	2	50	0	0.0	-16.6	16.6

```
41939        33.2  -54.5  DIRN.      2   50     0   0.0  ***** 160.3
62511        48.1  -13.9  DIRN.    440    0     0  16.1    7.8  17.9

62566        58.6  -16.4  DIRN.    473    0     0  23.0   -3.1  23.2
```

TABLE 9

MONTHLY MONITORING OF AIRCRAFT OBSERVATIONS (COSNA)
MONITORING CENTRE: EXETER
MONTH: Apr 2005

Monitoring procedures:
Period :One calendar month.

Data monitored :Statistics for each airline carrier.

Area monitored :40°N - 70°N, 60°W - 0°W.

Standard of comparison :Background field from UKMO global model.

Observation times :All hours combined.

Level(s) monitored :300.0 - 150.0 hPa

Elements monitored :TEMP in °C ; WIND in m s^{-1}

Parameters monitored :N REP. :Number of observations received excluding duplicates.

:PG :Percentage of observations with gross errors.

:PR :Percentage of observations rejected by quality control including rejections from the duplicate check.

:PC :Percentage of observations with calm winds.

:RMS :Root Mean Square difference of observations from background values excluding those with gross errors in Temperature & vector wind.

:BIAS :Mean difference of observations from background values excluding those with gross errors in Temperature & vector wind.

GROSS ERROR LIMITS :10.0 °C ; 60 m s^{-1} Vector Wind

SELECTION CRITERIA :N REP ≥ 20

NB: All American ACARS data are grouped together and statistics are shown at the bottom of the table as "US ACARS". All ADS reports are similarly grouped together.

		TEMPERATURE				WIND					
IDENT.	N.REP.	PG	PR	RMS	BIAS	N.REP.	PG	PR	PC	RMS	BIAS
AAL	565	0	3	1.4	-0.1	376	0	4	0	7.5	0.5
ACA	788	0	3	1.4	-0.2	508	0	3	0	6.0	0.6
AEA	540	0	3	1.5	0.0	447	0	4	0	7.6	0.6
AFL	420	0	2	1.6	0.2	214	0	2	0	8.1	0.3
AFR	729	0	5	1.5	0.2	715	0	7	0	8.0	0.0
AJM	167	0	4	1.3	-0.3	139	0	4	0	6.1	1.1
AMT	112	0	6	1.9	0.3	109	0	6	0	5.4	0.5
AMX	270	1	5	1.7	0.0	225	0	50	0	8.3	-0.1
AUA	26	4	54	5.5	4.4	24	0	4	0	7.9	0.1
AVA	37	3	3	1.3	0.5	37	0	5	0	11.1	-0.2
AZA	425	1	3	1.7	0.1	316	1	5	0	7.2	0.4
BAF	25	0	0	1.2	-0.7	20	0	0	0	4.5	0.0
BAL	228	0	8	1.5	-0.2	227	0	10	0	7.5	-0.2
BAW	476	1	19	1.8	-0.8	310	0	19	0	7.8	0.1
BPA	492	0	7	1.5	0.3	504	0	8	0	7.5	-0.3
BWA	195	1	5	1.8	-0.2	164	0	4	0	6.2	0.5
CFC	38	0	5	1.2	0.5	33	3	12	0	7.4	2.4
CFG	510	1	5	1.5	0.1	453	0	6	0	6.7	0.4
CKS	155	0	4	1.9	0.4	115	0	6	0	10.3	0.5
CLX	255	1	4	1.5	-0.5	171	0	3	0	4.6	0.1
CNJ	21	0	52	0.9	0.5	21	0	52	0	4.0	0.0
COA	152	1	26	1.7	0.0	96	0	27	0	9.1	0.5
CRL	461	1	4	1.6	0.3	440	1	7	0	8.5	0.3
CUB	119	0	0	1.4	-0.3	105	0	2	0	7.3	0.1
DAL	442	0	9	1.5	-0.4	314	0	9	0	7.1	1.0
DCS	33	0	6	1.3	-0.7	25	0	12	0	10.7	0.0
DHL	139	3	100	6.5	-5.4	74	0	20	0	12.4	3.4
DLH	564	0	10	1.5	0.0	541	0	12	0	7.9	0.6
DRD	38	0	0	1.7	-0.3	38	0	3	0	8.3	0.0
EDW	51	0	6	1.9	-0.1	39	0	8	0	8.5	1.4
EEZ	115	1	12	2.0	0.3	116	0	11	0	5.2	0.6
EIA	196	0	15	1.4	0.3	194	0	100	0	20.9	6.5
EIN	58	3	14	2.3	0.5	30	0	10	0	8.0	-0.2
ELY	75	1	1	1.5	-0.4	47	0	4	0	10.2	0.0
ETH	34	0	9	2.2	-0.4	34	0	6	0	4.4	1.1
FCA	81	0	1	1.1	-0.2	77	1	43	0	5.5	0.0
FDX	707	0	49	1.4	0.2	513	1	47	0	5.9	0.1
FIN	228	0	2	1.3	0.0	154	0	3	0	7.0	1.1
FWI	251	2	6	1.9	-0.4	249	0	4	0	7.3	0.8
GCO	121	1	10	1.4	0.1	114	0	58	0	10.2	1.6
GRL	65	0	2	1.8	0.5	48	0	0	0	4.7	1.3
GTI	121	0	26	3.2	1.4	116	0	14	0	7.7	1.0
HXL	144	1	6	1.6	0.0	110	0	5	0	6.3	0.6
IBE	1725	1	5	1.6	0.3	1717	0	7	0	7.8	0.6
ICE	914	1	4	1.5	0.1	512	0	3	0	5.5	0.7
ISR	54	0	13	1.5	-0.3	35	0	17	0	9.7	1.3
IWD	146	0	1	1.5	-0.1	146	1	5	0	7.5	1.1
KLM	730	0	3	1.6	-0.2	539	0	3	0	5.7	0.0
LAN	44	0	11	1.1	-0.4	46	0	15	0	11.3	-0.8
LDI	162	1	3	1.9	0.0	141	0	3	0	7.6	0.5
LOT	310	1	4	1.7	-0.2	198	0	4	0	6.6	0.4
LTU	672	1	4	1.6	0.0	498	0	3	0	6.9	0.7
MMZ	98	1	62	3.3	1.0	102	0	8	0	8.4	-0.3
MPD	173	1	3	1.7	0.2	153	0	2	0	6.8	0.1
MPH	287	1	2	1.6	-0.7	196	0	3	0	8.1	0.1
MYT	97	1	5	1.8	-0.1	76	0	3	0	7.4	1.3
NAO	47	0	2	2.0	-0.3	46	7	11	0	7.0	0.5
NCA	35	0	0	1.3	-0.5	31	0	0	0	4.3	1.1
NOS	35	0	6	1.3	-0.2	28	0	4	0	6.4	2.1

	TEMPERATURE					WIND					
IDENT.	N.REP.	PG	PR	RMS	BIAS	N.REP.	PG	PR	PC	RMS	BIAS
NVR	33	3	3	1.5	0.2	20	0	0	0	4.4	0.5
NWA	1680	1	5	1.9	0.2	1615	0	6	0	8.2	0.4
OAE	186	0	11	1.9	-0.4	102	0	25	0	14.0	3.8
OOM	80	0	4	1.6	-1.1	69	1	4	0	4.0	0.3
PAC	215	0	9	1.8	-0.2	170	0	9	0	6.5	0.2
PLM	109	2	4	1.8	0.9	92	0	4	0	8.5	0.4
RAM	256	1	5	2.0	0.3	178	1	67	0	7.1	0.0
RCH	219	1	100	3.3	-1.0	163	1	100	0	10.0	1.8
RJA	31	0	10	2.4	1.8	20	0	0	0	5.7	1.6
RRR	96	0	4	1.6	0.0	93	0	8	0	7.0	0.6
RZO	213	0	5	1.5	-0.4	193	0	5	0	7.1	0.7
SEU	135	1	7	2.4	-0.2	117	0	4	0	6.7	0.7
TAP	242	0	2	1.6	-0.1	195	0	3	0	6.4	0.3
TPA	28	0	7	2.2	0.4	24	0	0	0	5.4	-1.4
TSC	94	0	3	1.6	-0.8	63	0	5	0	8.7	0.6
TSO	42	0	14	1.3	-0.9	41	2	17	0	5.2	0.6
TUB	79	0	3	1.4	-0.1	35	0	6	0	6.9	0.6
UAE	37	0	8	1.9	-0.2	37	0	5	0	6.1	1.4
UAL	53	0	74	1.7	-1.0	39	0	72	0	5.3	1.3
UPS	999	0	50	1.5	0.1	968	0	50	0	7.0	0.0
USA	60	0	3	2.1	0.2	48	0	4	0	10.0	1.2
VIR	100	0	1	1.5	-0.1	71	1	4	0	9.0	0.7
VVJ	21	0	19	2.2	-0.4	24	0	21	0	12.5	3.0
WOA	218	0	13	1.9	0.5	181	1	14	0	7.3	0.7
XLA	68	0	1	1.2	-0.2	67	0	6	0	5.9	1.6

	TEMPERATURE					WIND					
IDENT.	N.REP.	PG	PR	RMS	BIAS	N.REP.	PG	PR	PC	RMS	BIAS
EU	29991	0	22	1.2	0.1	29991	0	21	0	4.1	0.3
TN	25	0	8	1.9	0.7	25	0	16	0	11.4	1.3
N	429	2	4	1.9	0.5	259	0	5	0	6.5	0.5
US ACARS	25898	0	37	1.4	0.2	25898	0	32	0	4.5	0.3

TABLE 10

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS (COSNA)
MONITORING CENTRE: EXETER
MONTH: Apr 2005

Monitoring procedures

Period		:One calendar month.
Data monitored		:Reports from selected radiosonde TEMPs.
Area monitored		:0°N - 90°N, 100°W - 40°E
Standard of comparison		:Background field from UKMO global model.
Position		:Average latitude and longitude for period.
Observation times		:00, 12 UTC.
Level monitored		:100 hPa.
Element monitored		:GEOPOTENTIAL HEIGHT in metres
Parameters monitored	:NUM OBS	:Number of observations available at level shown during period.
	:NUM GROSS	:Number of gross errors at level shown during period.
	:SD	:SD of difference of observations from background values at level shown excluding those with gross errors.
	:BIAS	:Mean difference of observations from background values at level shown excluding those with gross errors.
GROSS ERROR LIMITS	:Defined in Appendix I.1	

WMO IDENT	OBS TIME	ELM	LEV	NUM OBS	NUM GROSS	SD	RMS	BIAS
EBUQ	12	Z	100	5	0	82.2	91.2	39.6
ELML7	00	Z	100	6	0	12.3	15.2	9.0
ELML7	12	Z	100	7	0	17.4	19.5	8.7
FQFL	00	Z	100	8	1	25.6	27.5	10.1
FQFL	12	Z	100	11	0	11.3	28.9	26.5
FQFM	00	Z	100	10	0	11.5	12.1	3.8
FQFM	12	Z	100	8	0	11.2	11.3	-1.8
HPII	00	Z	100	4	0	10.7	14.3	-9.5
HPII	12	Z	100	6	0	28.1	29.9	-10.3
LDWR	00	Z	100	28	0	12.9	13.0	0.8
LDWR	12	Z	100	29	0	10.4	11.4	-4.7
OXTS2	00	Z	100	5	0	13.0	31.1	28.2
OXTS2	12	Z	100	5	0	5.0	31.6	31.2
OXYH2	00	Z	100	1	0	0.0	38.0	38.0
OXYH2	12	Z	100	1	0	0.0	33.0	33.0
SKUN	00	Z	100	1	0	0.0	15.0	15.0
SKUN	12	Z	100	2	0	9.0	28.5	27.0
V2XM	00	Z	100	5	0	41.0	60.6	44.6
V2XM	12	Z	100	5	0	25.1	34.7	24.0
WAAH	00	Z	100	14	0	14.7	56.5	54.5
WAAH	12	Z	100	19	0	22.6	64.4	60.3
ZCBP6	00	Z	100	12	0	11.4	46.2	44.8
ZCBP6	12	Z	100	11	0	15.6	46.2	43.5
03953	00	Z	100	28	0	8.8	13.0	9.5
03953	12	Z	100	29	0	15.7	16.6	5.3
04018	00	Z	100	29	0	10.0	14.2	10.0
04018	12	Z	100	29	1	15.5	20.8	13.9
04220	00	Z	100	29	0	17.3	21.5	12.8
04220	12	Z	100	29	0	27.8	29.2	8.9
04270	00	Z	100	29	0	8.6	16.6	14.2
04270	12	Z	100	28	0	8.3	14.3	11.7
04339	00	Z	100	27	0	14.4	17.6	10.1
04339	12	Z	100	29	0	14.3	18.1	11.1
04360	00	Z	100	28	0	15.7	20.8	13.6
04360	12	Z	100	29	0	11.7	19.2	15.2
08001	00	Z	100	16	0	7.4	18.8	17.3
08001	12	Z	100	18	0	11.4	27.7	25.3
08508	00	Z	100	22	0	11.0	27.1	24.8
08508	12	Z	100	28	0	10.3	31.6	29.9
08522	12	Z	100	27	0	11.6	18.6	14.5
08594	12	Z	100	25	0	22.9	23.5	5.5
71600	00	Z	100	29	0	8.6	17.2	14.9
71600	12	Z	100	30	0	13.1	24.4	20.6
72201	00	Z	100	29	0	9.7	23.4	21.2
72201	12	Z	100	30	0	11.9	31.3	28.9
72402	00	Z	100	28	0	10.2	31.1	29.3
72402	12	Z	100	29	0	14.3	26.1	21.8
74494	00	Z	100	25	0	9.7	18.4	15.7
74494	12	Z	100	30	0	12.4	14.8	8.1
78016	00	Z	100	29	0	12.8	30.2	27.3
78016	12	Z	100	29	0	14.0	31.7	28.4

TABLE 11

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS (COSNA)
MONITORING CENTRE: EXETER
MONTH: Apr 2005

Monitoring procedures:

Period		:One calendar month.
Data monitored		:Reports from selected radiosonde TEMPs.
Area monitored		:0°N - 90°N, 100°W - 40°E
Standard of comparison		:Background field from UKMO global model.
Position		:Average latitude and longitude for period.
Observation times		:00, 12 UTC.
Level monitored		:500 hPa.
Element monitored		:GEOPOTENTIAL HEIGHT in metres
Parameters monitored	:NUM OBS	:Number of observations available at level shown during period.
	:NUM GROSS	:Number of gross errors at level shown during period.
	:SD	:SD of difference of observations from background values at level shown excluding those with gross errors.
	:BIAS	:Mean difference of observations from background values at level shown excluding those with gross errors.
GROSS ERROR LIMITS	:Defined in Appendix I.1	

WMO IDENT	OBS TIME	ELM	LEV	NUM OBS	NUM GROSS	SD	RMS	BIAS
DBBH	12	Z	500	1	0	0.0	6.0	6.0
EBUQ	12	Z	500	5	0	5.2	11.1	-9.8
ELML7	00	Z	500	7	0	4.8	8.1	-6.6
ELML7	12	Z	500	9	0	5.0	5.2	-1.2
FQFL	00	Z	500	10	0	40.7	41.7	-9.2
FQFL	12	Z	500	11	0	8.1	12.0	8.9
FQFM	00	Z	500	10	0	9.0	11.6	-7.4
FQFM	12	Z	500	9	0	10.6	14.1	-9.3
HPII	00	Z	500	4	0	8.7	19.8	-17.8
HPII	12	Z	500	6	0	6.3	9.8	-7.5
LDWR	00	Z	500	28	0	9.6	10.0	2.8
LDWR	12	Z	500	29	0	7.8	7.9	1.2
OXTS2	00	Z	500	5	0	6.9	18.7	17.4
OXTS2	12	Z	500	5	0	4.3	20.5	20.0
OXYH2	00	Z	500	1	0	0.0	31.0	31.0
OXYH2	12	Z	500	1	0	0.0	23.0	23.0
SKUN	00	Z	500	1	0	0.0	7.0	7.0
SKUN	12	Z	500	2	0	9.0	19.2	17.0
V2XM	00	Z	500	6	0	25.9	42.6	33.8
V2XM	12	Z	500	6	0	8.0	29.8	28.7
WAAH	00	Z	500	15	0	9.6	37.6	36.3
WAAH	12	Z	500	19	0	18.5	43.7	39.6
ZCBP6	00	Z	500	12	0	9.1	30.6	29.3
ZCBP6	12	Z	500	13	0	12.9	31.4	28.6
03953	00	Z	500	29	0	6.1	8.0	5.1
03953	12	Z	500	30	0	6.2	6.7	2.7
04018	00	Z	500	29	0	7.5	11.8	9.1
04018	12	Z	500	29	1	10.2	13.8	9.4
04220	00	Z	500	29	0	11.2	15.7	11.0
04220	12	Z	500	29	0	14.4	16.1	7.3
04270	00	Z	500	29	0	9.1	11.5	7.0
04270	12	Z	500	28	0	10.4	12.2	6.4
04339	00	Z	500	27	0	10.8	16.3	12.3
04339	12	Z	500	29	0	9.9	15.8	12.3
04360	00	Z	500	28	0	7.1	9.9	6.9
04360	12	Z	500	29	0	7.0	11.9	9.7
08001	00	Z	500	18	0	5.8	7.5	4.7
08001	12	Z	500	21	0	9.2	11.0	6.0
08508	00	Z	500	22	0	7.6	7.6	-0.5
08508	12	Z	500	28	0	7.0	7.5	2.6
08522	12	Z	500	29	0	6.7	6.8	-1.0
08594	12	Z	500	27	0	7.7	8.0	-2.1
71600	00	Z	500	29	0	9.8	10.4	3.4
71600	12	Z	500	30	0	8.1	11.5	8.2
72201	00	Z	500	29	0	5.8	5.8	-0.3
72201	12	Z	500	30	0	5.0	5.4	-2.2
72402	00	Z	500	29	0	7.0	7.4	2.3
72402	12	Z	500	30	0	6.6	6.6	-0.3
74494	00	Z	500	26	0	7.2	7.2	0.2
74494	12	Z	500	30	0	6.6	7.3	3.1
78016	00	Z	500	29	0	6.8	11.2	8.9
78016	12	Z	500	29	0	8.8	14.2	11.1

TABLE 12

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS (COSNA)
MONITORING CENTRE: EXETER
MONTH: Apr 2005

Monitoring procedures

Period		:One calendar month.
Data monitored		:Reports from selected radiosonde TEMPs.
Area monitored		:0°N - 90°N, 100°W - 40°E
Standard of comparison		:Background field from UKMO global model.
Position		:Average latitude and longitude for period.
Observation times		:00, 12 UTC.
Level monitored		:100 hPa.
Element monitored		:VECTOR WIND in m s^{-1}
Parameters monitored	:NUM OBS	:Number of observations available at level shown during period.
	:NUM GROSS	:Number of gross errors at level shown during period.
	:UBIAS,VBIAS	:Mean difference of observations of U and V components from background values at level shown excluding those with gross errors.
	:RMS	:Root Mean Square difference of observations from background values at level shown excluding those with gross errors.
GROSS ERROR LIMITS	:Defined in Appendix I.2	

WMO IDENT	OBS TIME	ELM	LEV	NUM OBS	NUM GROSS	% REJ	RMS	UBIAS	VBIAS
EBUQ	12	V	100	4	0	0	6.2	0.0	1.6
ELML7	00	V	100	5	0	100	10.9	-8.7	-5.8
ELML7	12	V	100	5	0	100	8.8	-5.8	-4.8
FQFL	00	V	100	8	0	0	5.7	-1.3	1.5
FQFL	12	V	100	9	0	0	4.7	0.5	0.6
FQFM	00	V	100	10	0	0	4.5	0.8	-0.8
FQFM	12	V	100	8	0	0	5.2	-0.2	-0.3
HPII	00	V	100	4	0	0	3.7	-1.7	-0.6
HPII	12	V	100	6	0	0	5.6	-1.2	-0.6
LDWR	00	V	100	28	0	0	2.2	-0.2	-0.4
LDWR	12	V	100	29	0	0	2.0	0.1	-0.7
OXTS2	00	V	100	5	0	0	3.9	-1.4	0.8
OXTS2	12	V	100	4	0	0	2.0	0.1	-0.2
SKUN	00	V	100	1	0	0	2.3	-1.8	1.4
SKUN	12	V	100	2	0	0	2.5	-0.8	-1.6
V2XM	00	V	100	2	0	50	15.0	11.9	3.8
V2XM	12	V	100	3	0	0	4.1	3.1	2.0
WAAH	00	V	100	14	0	50	3.9	0.2	0.9
WAAH	12	V	100	16	0	43	4.3	0.7	0.8
ZCBP6	00	V	100	12	0	66	3.7	-1.3	0.0
ZCBP6	12	V	100	9	0	44	5.0	-0.9	0.2
03953	00	V	100	28	0	0	2.5	-0.3	0.0
03953	12	V	100	29	0	0	2.1	0.0	-0.2
04018	00	V	100	29	0	0	2.2	0.0	-0.9
04018	12	V	100	30	0	0	2.6	0.3	0.0
04220	00	V	100	29	0	0	2.6	-0.1	0.1
04220	12	V	100	28	0	0	3.0	0.3	0.4
04270	00	V	100	28	0	0	3.1	-0.6	0.4
04270	12	V	100	27	0	0	2.7	-0.5	0.4
04339	00	V	100	25	0	8	6.6	-2.2	-0.1
04339	12	V	100	28	0	0	5.0	0.2	0.0
04360	00	V	100	28	0	0	3.1	-0.9	0.1
04360	12	V	100	29	0	3	4.3	-0.6	-0.5
08001	00	V	100	16	0	0	4.8	1.4	1.7
08001	12	V	100	18	0	0	4.3	-0.4	-0.3
08508	00	V	100	10	0	0	4.6	0.2	1.5
08508	12	V	100	11	0	0	3.3	-0.8	-0.3
08522	12	V	100	26	0	0	4.9	-0.1	-0.5
08594	12	V	100	24	1	100	5.0	-0.9	0.5
71600	00	V	100	29	0	0	4.1	-0.2	0.7
71600	12	V	100	30	0	0	3.3	0.0	1.1
72201	00	V	100	29	0	0	3.8	0.6	0.6
72201	12	V	100	30	0	0	4.5	1.5	1.0
72402	00	V	100	27	0	0	3.9	-1.0	-0.1
72402	12	V	100	29	0	0	4.7	-0.9	0.4
74494	00	V	100	25	0	100	3.3	-1.0	0.6
74494	12	V	100	29	0	100	3.3	-1.0	1.5
78016	00	V	100	29	0	0	6.2	-1.0	0.5
78016	12	V	100	29	0	0	5.1	0.8	0.9

TABLE 13

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS (COSNA)
MONITORING CENTRE: EXETER
MONTH: Apr 2005

Monitoring procedures

Period :One calendar month.

Data monitored :Reports from selected radiosonde TEMPs.

Area monitored :0°N - 90°N, 100°W - 40°E

Standard of comparison :Background field from UKMO global model.

Position :Average latitude and longitude for period.

Observation times :00, 12 UTC.

Level monitored :500 hPa.

Element monitored :VECTOR WIND in m s^{-1}

Parameters monitored :NUM OBS :Number of observations available at level shown during period.

:NUM GROSS :Number of gross errors at level shown during period.

:UBIAS,VBIAS: Mean difference of observations of U and V components from background values at level shown excluding those with gross errors.

:RMS :Root Mean Square difference of observations from background values at level shown excluding those with gross errors.

GROSS ERROR LIMITS :Defined in Appendix I.2

WMO IDENT	OBS TIME	ELM	LEV	NUM OBS	NUM GROSS	% REJ	RMS	UBIAS	VBIAS
EBUQ	12	V	500	5	0	20	9.0	0.9	-4.9
ELML7	00	V	500	6	0	100	7.4	-5.9	-3.4
ELML7	12	V	500	5	0	100	9.5	-8.3	-3.5
FQFL	00	V	500	10	0	0	3.9	0.1	0.2
FQFL	12	V	500	11	0	0	4.7	-1.4	1.9
FQFM	00	V	500	10	0	0	4.4	-0.7	-0.1
FQFM	12	V	500	9	0	0	4.2	1.1	-1.1
HPII	00	V	500	4	0	0	6.3	1.2	3.3
HPII	12	V	500	6	0	0	3.4	-1.8	1.1
LDWR	00	V	500	28	0	0	3.8	0.4	0.2
LDWR	12	V	500	29	0	0	3.0	0.0	-0.4
OXTS2	00	V	500	5	0	0	4.3	-1.2	-0.9
OXTS2	12	V	500	5	0	0	4.2	-0.1	-3.4
SKUN	00	V	500	1	0	0	2.8	0.9	-2.7
SKUN	12	V	500	2	0	0	2.0	-0.1	1.1
V2XM	00	V	500	3	0	0	6.0	0.7	0.4
V2XM	12	V	500	3	1	0	5.0	0.7	-0.1
WAAH	00	V	500	15	0	53	3.2	-0.3	-0.2
WAAH	12	V	500	19	0	57	4.6	-0.6	0.6
ZCBP6	00	V	500	12	0	66	3.7	-0.6	-0.3
ZCBP6	12	V	500	12	0	50	3.6	0.8	0.1
03953	00	V	500	29	0	0	4.2	0.1	-1.1
03953	12	V	500	30	0	0	3.7	0.6	0.0
04018	00	V	500	29	0	0	4.9	0.2	0.2
04018	12	V	500	30	0	0	3.4	0.2	0.0
04220	00	V	500	29	0	0	3.9	-0.5	-0.9
04220	12	V	500	29	0	0	3.3	-0.4	0.2
04270	00	V	500	29	0	0	3.9	0.5	0.2
04270	12	V	500	28	0	0	4.5	0.1	0.2
04339	00	V	500	23	0	0	5.7	-1.1	-0.7
04339	12	V	500	28	0	0	4.2	-0.5	-0.1
04360	00	V	500	28	0	0	5.1	-1.0	0.7
04360	12	V	500	27	0	0	4.9	0.4	0.2
08001	00	V	500	18	0	0	3.3	-0.3	0.9
08001	12	V	500	21	0	0	3.6	1.1	0.0
08508	00	V	500	12	0	0	4.8	-0.6	0.0
08508	12	V	500	11	0	0	5.5	0.3	0.1
08522	12	V	500	29	0	0	3.2	-0.2	0.5
08594	12	V	500	27	0	59	4.2	-0.7	0.2
71600	00	V	500	29	0	0	3.9	-0.4	-0.1
71600	12	V	500	30	0	0	4.7	-0.4	0.4
72201	00	V	500	29	0	0	2.7	-0.1	0.6
72201	12	V	500	30	0	0	3.3	-0.2	0.3
72402	00	V	500	28	0	0	3.5	-0.4	-0.6
72402	12	V	500	30	0	0	3.9	0.0	0.8
74494	00	V	500	25	0	4	4.5	0.3	-0.4
74494	12	V	500	30	0	0	4.0	-0.2	0.1
78016	00	V	500	29	0	0	5.2	0.3	1.6
78016	12	V	500	29	0	0	4.6	-0.1	-0.1

APPENDIX I

1. The gross error limits for observation minus background differences of geopotential height in Tables 5, 10 and 11 are:-

Level (hPa)	Geopotential height (metres)
1000	100
850	100
700	100
500	150
400	175
300	200
250	225
200	250
150	275
100	300
70	375
50	400
30	450

The weighted RMS values used in Table 5,10 and 11 are calculated using the following weights:-

Level (hPa)	Weight
1000	3.70
850	3.40
700	2.90
500	2.20
400	1.90
300	1.60
250	1.50
200	1.37
150	1.19
100	1.00
70	0.87
50	0.80
30	0.64

2. The gross error limits for observation minus background differences of windspeed in Tables 6,12 and 13 are:-

Level (hPa)	Windspeed m s^{-1}
1000	35
850	35
700	40
500	45
400	50
300	60
250	60
200	50
150	50
100	45